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CONTENTS

ORIGINAL ARTICLES

PAGE

The Relation of Diet to Development of Dental Caries. Guy L. Bliss, M. D. 1

The Rate of Acidified Milk in Infant Feeding. Roy M. Greenthal, M. D. 9

A Simple, Practical Method for the Feeding of Infants. D. Murray Cowie, M. D. 10

Treatment of Alimentary Intoxication and Report of Cases. Earl W. May, M. D. 14

Feeding of Infants and Children. B. Raymond Hoobler, M. D. 16

The Causative Factor of Vessel Compression in Upper Urinary Obstruction. George C. Burr, M. D. 21

PAGE

Encephalitis Lethargica—A Clinical Study of Ten Cases. Stuart Wilson, M. D., Frank A. Weiser, M. D. 24

President's Annual Address (1921-22) to the Wayne County Medical Society 27

Non-Tuberculous Infections of the Kidney. Fred H. Cole, M. D., F. A. C. S. 32

Mental and Behavior Changes in Children Following Encephalitis. Homer T. Clay, M. D. 37

PUBLIC HEALTH EDUCATION

IX.—Physical Examinations—(Continued). John Sundwall, Ph. D., M. D. 40

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CONTENTS—Continued

EDITORIALS

Our Relationship to the Community 45
The Advancement of Medicine in Detroit 46
Detroit Post-Graduate Lectures 46
The Blodgett Gift 46
Hygeia—A Journal of Individual and Community Health 48
Wayne County Membership Campaign 48
Report of Committee on Nurses 48
Editorial Comment 49
Correspondence 51

DEATHS

Dr. George C. Bassett 51
Dr. W. S. Stevens 51

STATE AND SOCIETY NEWS

State News Notes 51
Genessee County 53
Menominee County 53
Ingham County 53
Gratiot-Isabella-Clare County 54

BOOK REVIEWS

The Propaganda for Reform in Proprietary Medicines 54

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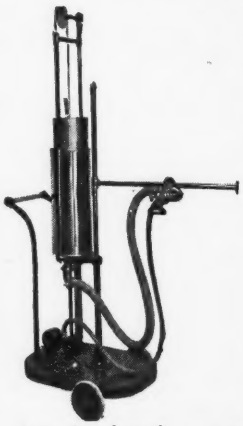

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Vol. XXII GRAND RAPIDS, MICHIGAN, JANUARY, 1923 No. 1

Original Articles

THE RELATION OF DIET TO DEVELOPMENT OF DENTAL CARIES*

GUY L. BLISS, M. D.
KALAMAZOO, MICH.

For years the dental profession has waged a losing battle in its attempt to control caries in a child's teeth. The most skillful and highly specialized technic in dentistry has failed to stem the tide. The plan of oral cleanliness both chemically and mechanically is viewed by the profession itself with disappointment. Children are brought in for dental cleaning and filling and in thirty days the fillings are loose or lost and decay again runs rampant. The discouraged mother criticizes the dentist, little realizing that she is asking and expecting the impossible. Little does the dentist realize that with only the knowledge of the past he is attempting the impossible. The indifferent dentist became discouraged long ago, and advised the mother to let the teeth alone, save for cleaning. We hear this comment daily from mother's returning from a visit to their dentist. In the experience of the past he has considerable reason on his side, but in our knowledge of newer nutrition his advice is unsafe. The pioneers among the profession have strained to the utmost their ingenuity and thought to discover why dental caries has advanced with civilization. In Stratford, Conn. says Dr. Hartman(1), five hundred and fifty children were examined. Only one was found with teeth free from decay. The average number of decayed teeth in each child was seven. This was only in the first five grades. This is fairly illustrative of the fact that in schools of the United States, it was difficult to find two per cent of the children with good teeth. An outstanding problem confronts us for solution. With our modern civilization and specialization our race is deteriorating in dental respects.

PREDECESSORS

The Eskimos, before they became civilized, had no word for decayed tooth or toothache.

*Read before the Calhoun County Medical Society in July, 1922.

Among the pastoral tribes of Scotland and Scandinavia, in rural Italy and the Orient, and among the East Indians this is also true. Only after these people became civilized did dental caries develop.

Let us consider the diet of our predecessors and ancestors and also their physical condition. It is reported that in the National Museum at Washington, there are hundreds of skulls of Indians, taken from the Pacific coast. They vary in age from three hundred to five hundred years. These skulls show no signs of tooth decay whatever. The teeth and jaws are all perfectly developed, but show no signs of decay. Another example from Iceland. These people live in a region where it did not pay to farm. They took with them their cattle, sheep, horses and for hundreds of years they lived on practically a carnivorous diet. Milk, mutton, fish, fowls, eggs and wild fowl constituted their diet, and as long as they lived upon essentially a carnivorous diet there were no signs of decay, but in the last seventy-five years they have been going into a stage of physical deterioration and dental decay.

Mr. Stevenson, the Arctic explorer tells of ninety-six skulls found in Iceland. Skulls dating back from the ninth century, and in none of them was there evidence of tooth decay, excepting some that showed signs of unmistakable mechanical injury. But the Icelanders of this generation are suffering with both tooth and skeletal degenerations. This is due directly to the contact of the people of Iceland with those of other parts of the world; that is, they have come to live more and more like our housewife, who lives from a paper sack upon the things that she carries home from the corner grocery store.

(2) Another type, the American Indians, were wonderful specimens of physical development, so reports Dr. Clark, and the older Indians, even in the reservations of Wisconsin, Minnesota and Montana have good specimens of teeth at the present time, but the younger generation and children show a rapid skeletal and tooth decay. The younger generations of Indians are living like their American brothers, upon the types of food that is furnished them already cooked, and in some cases with

an advertisement upon the can "Predigested." The same condition is true of the Eskimos, the Laps, and the pastoral tribes of Asia and Africa. The people of the Orient, of Switzerland, Scandinavia and parts of Scotland, Ireland and the Hebrides have been highly successful with their nutrition because of the diet which they used in the past, but now they show deficient dental apparatus. The Sioux Indians are a tribe which have shown in past generations a normal occlusion, but the present generation shows a deficiency occlusion in at least fifty per cent of the cases. There are two etiological factors, the first, of course, is associated directly with nasal obstruction and tonsillar hypertrophy, but these diseases are very uncommon among the Sioux Indians. Therefore, they may be excluded as a causal factor. The etiology must be sought in the kind and class of foods. In this respect we notice the eating habits of the Indians have completely changed, and now he lives upon things purchased from the grocery store on the reservation, and it is no longer necessary for him to use his teeth for hard crushing or to use his front teeth for tearing, both of which are considered by McKay(3) as an etiological factor in malocclusion. This change has been brought about in two generations.

The question naturally arises why have our predecessors and the early tribes been free from dental caries? They came from all climates of the world. They lived on entirely different diets, grading from the carnivorous type of the Arctic on the one hand to the omnivorous diet of the orientals on the other, yet our museums show in past tribes and in the pure tribes today wonderful freedom from dental caries. Can diet then possibly be a factor in preventing or producing dental caries?

WILD ANIMALS

Hunters and explorers, relating their experience with animals in the wild natural state invariably mention their wonderful dental and skeletal apparatus. For example the tiger, the lion, the wolf are all strictly carnivorous. The bison the horses and the cattle of the western plains are all strictly herbivorous, yet their dental and skeletal apparatus are specimens of marvel. We note that the bear, cat and dog, whose diets are omnivrous have a wonderful apparatus, when not too domesticated. Why such unusually splendid teeth? Here are three kinds of animals on three different types of diet, yet their teeth are uniformly perfect. Can diet be a determining factor?

CIVILIZED TRIBES

Let us examine the records of the English speaking people today, because they show the greatest abnormality in dental apparatus. Contrast the records of our predecessors, contrast the records of the animal world, if you will, with the report of Dr. Clark of the District Health Survey at Washington, who has examined thousands of school children in the United States, and states that ninety per cent of the school children in this country have from one to eleven cavities in their teeth. We also learn from experience that the number of bad teeth parallels the other signs of physical inferiority. With the decayed teeth you often find malocclusion, deformed jaws, mobile jaws, fatigue posture, fatigue expression on the face, anemia, indolent habits of mind, flat feet, bow legs, knock knees. Many of these imperfections and many others that we might mention are both companions of high tooth decay.

What factors in civilization are the detrimental ones? Does learning to read and write and spell, and to think have a tendency to produce dental caries? Does our elegant dress and driving high powered cars produce dental caries? No. Civilization alone does not produce dental caries. Here applies the axiom that "A Little Knowledge Is a Dangerous Thing." Is it not possible that the cause may lie in our ignorance of the fundamentals of diet? The gullible public are still confused by the advertising of those food manufacturers who are actuated only by mercenary motives. The dental and medical profession, equally ignorant themselves, have unearthed from some unsuspected source, facts which cast on the eastern horizon a ray of hope for the solution of this great problem. No longer does the thinking public cling to the hope of curing disease and mechanically correcting dental caries. No longer do the alert medical and dental profession emphasize cures as such. Those professions originally dealt with the relief from disease, but they have developed within their fold a new department, called prophylactic or preventive medicine. This new department is a child that has already outstripped its parents. It is this prophylaxsis that fosters this paper.

Is it possible that by diet, malnutrition, dental caries and many deficiency diseases may be prevented? Of course, we realize one limitation. We appreciate that a child's inheritance is its determining factor, and we have no power within our control to influence the germ plasm. Let us investigate the dietetic side of this problem.

Five classes of food are essential to normal development.

(1) Fats, known generally as hydro carbons, used in a general way in the production of heat, energy and deposition of adipose tissue.

(2) Carbo hydrates, which also are used generally for the production of heat, energy and deposition of adipose tissue.

(3) Proteids, used generally in the build-

ing of organic tissue, or may be used as a substitute for the other forms of food.

(4) Minerals, sodium, potassium, magnesia, chlorine, phosphorus, iodine, sulphur and iron, are all indispensable factors in the development of all tissues and bone and teeth.

(5) Vitamins, known for the lack of better terms as Fat Soluble A, Water Soluble B and Water Soluble C.

FATS

Welker(4) maintains that it is highly desirable that individuals must not be over fed in any particular kind of food, and he summarizes several medical writers with the statement that an excessive amount of adipose tissue predisposes that individual to diabetis. The fat individual has much less resistance to certain types of infection than the one of normal weight, hence, it appears that excessive weight has a tendency to shorten the span of life. Joslin states that at the present time there are 1,400,000 diabetics in the United States, and that because the treatment of the disease is so universally unsatisfactory, we must seek preventative measures.

PROTEIDS

Dr. McCollum(6) of Johns Hopkins University has carried on a series of about four thousand experiments extending over a period of twelve years. He has used the ordinary laboratory rat, the omnivorous type with the average three year span of life. None of these animals can be made to live more than three years, the average length of their life being about two and one-half years. He has been able to produce very spectacular results with the diet and he has been able to foretell just the results that he could obtain in any given pair of rats by their diet. For example, he may be able to make a pair of rats live to the full three years, have a normal growth of hair, teeth, skeleton, reproduce regularly, and suckle their young, all of which may live and grow to the age of reproduction. He may take another pair of rats and so modify their diet that they will grow rapidly until about half the adult size, then rapidly deteriorate within two months. These rats, instead of maintaining a normal condition after they reach the adult growth begin to deteriorate rapidly. Again he may so modify the diet as to make the rats show when only half grown or even fully grown, a thinness of hair and lack of luster, uneveness in the length of hair and a very irritable nervous system. Rats have a very characteristic attitude, just as human beings and when once seen it may be easily recognized. They have a normal expression and normal color and luster of the hair, and have no apprehension of danger. They do not mind being handled. McCollum has taken some of these rats and by changing the proteid only in the diet he has been able to produce infanticidel tendency in the mothers and they invariably destroy their own young within the first day or two after birth. Another example, is a family of rats that is deficient in proteid only. These are one type of border-line malnutrition. They are capable of reproducing and while the mother is upon this diet, deficient in proteids only, she may bear two or three litters and destroy them all within a day or two. If the diet is changed, improving only the quality of proteid in her diet, and she is rebred, she can raise two or more litters of young rats and raise one hundred per cent of them, and the tendency to destroy her young has disappeared. She has been changed from a nervous, irritable, apprehensive rat, with infanticidel tendencies, characteristic of an abnormal psychic reaction, which is one of the fundamental attributes of a disturbed nervous system, to a perfectly normal, motherly attitude of mind.

MINERALS

Another example, if the diet is all normal, except that it is too low in calcium, the rat will show very different peculiarities. It will not grow under such circumstances, but remain stunted. An experimental rat in such a condition is under nourished, suffers from insomnia, shows no interest in its surroundings. It is completely upset on account of the absence of calcium in its diet, it is fearful and it is almost impossible to catch it, and in its fright it may attempt to kill itself. By feeding this rat some precipitated chalk in the proper amounts, changing nothing else in its diet, it will become in two or three weeks, calm, quiet, a veritable pet.

Dr. Grives of Baltimore has examined the teeth and skulls of about thirteen hundred experimental animals, representing a wide range of medical diseases, and in this series of experiments it was possible to duplicate lesions of human dental defects. All of these animals experimented upon were left in the same room, same sun light, same temperature, same ventilation, same exercise. The diet was the only different factor, and with this one modification in their lives McCollum has produced in certain cases a magnificent dental apparatus that lasts throughout life. In other cases he has produced pulp exposure in the incisors and in the molars. He has also obtained abscesses in the apices of the teeth by an unbalanced diet.

Percy R. Howe(7), has shown that by feeding vitamin deficient diets a decalcification of the teeth occurred, even though a sufficient amount of calcium was furnished. The decalcification of the teeth appears to begin at the tips. The occluding surfaces of the molars became matted out by mastication. In some teeth, decayed portions of the enamel adhered

to the decalcified dental matrix. This enamel eventually crumpled to pieces leaving only decalcified dentine. This decalcified tooth, of course, could be readily penetrated. Decalcification also occurred between the incisors in some instances, and in some cases it appeared as a band across the incisors, resembling very closely a decay. Continuing the experiment further, Howe has been able to show how calcification of the maxilla is easily produced by inserting the proper vitamins in the diet. In the various tests upon animals it was shown that in those upon Fat Soluble A and Water Soluble B deficient diets, the changes visable to the naked eye upon the teeth were not nearly as noticeable as those of the animals that were kept upon a Vitamin C deficient diet. In those with the Fat Soluble A deficient, the teeth were shortened and appeared to be worn down, the enamel presenting areas that were frosted, but in the animals upon the Vitamin C deficient diet, there was a marked decalcification of the teeth. In one animal the molars of the lower jaw were decayed and rubbed off of the lingual side until the grinding surfaces were gone. The molars were all malposed and the first molars of the maxilla touched one another across the tongue. The lower incisors had become hollowed out so that a probe could readily be passed into the tooth for some distance. The enamel at the incisor part was thin, transparent and unsupported by dentine. Controls in both of these classes of cases were absolutely normal. Howe feels that the relation of the three vitamins, and the mineral content of the diet are important factors in dental caries.

Bunting has shown that there is much greater susceptibility to the decay of the teeth where the calcium content of the salvia is comparatively low, and the use of inorganic salts containing calcium is a great benefit. The high calcium content of salvia tends toward the maintenance of a hard, smooth surface of the teeth, and it is particularly important that there be a diet high in inorganic content during the early development of the baby, and also the same applies to the diet of the mother during pregnancy.

A. P. Rogers(8) referring to occlusion maintains that the child has many habits forced upon him which tend to influence the development of the entire body. Habits of eating in most civilized countries and especially in America are such as to limit the functional activities of the parts to their minimum effort. The stimuli received by exercise where functional activity is normal for that individual, cannot help but develop the organism more nearly to its proper size and strength. This functional activity of the child, being required to chew grains, cereals, nuts, vegetables, fruits, etc., has a marked tendency to help the general development of the teeth and jaws. The taking of foods so completely cooked and completely softened that no mastication is necessary, and the taking of foods in concentrated form only, brings about a weakening of the jaws and teeth.

E. C. Kirk(9), points out that in the growing child there is a harmonious synchronism between the root growth and teeth observed as a delicately balanced mechanism, a sort of moving equilibrium dependent for its stability upon the nutritional and physiological balance of the entire infant's organism. During this period of dentitional stress, poor child hygiene, improper food, indigestion or physical irritation may affect the organism so as to produce a discord between the root growth and the absorption of the tissues over-lying the tooth crown. This causes a downward pressure at the undeveloped root end against the papilla producing a pathological dentition.

CARBO HYDRATES

H. J. Johns(5), Cleveland, Ohio, has shown conclusively that some have a predisposition to diabetis, and that in his experience by testing the glucose tolerance of the blood and also the glucose content of the blood he has been able to prove that there are many cases of diabetis which do not actually show sugar in the urine. By predisposition to diabetis he means those cases which after receiving 100 grams of glucose on a fasting stomach show a slow rise in blood sugar content, and a very slow fall to normal requiring more than three hours and no glycosuria. He has also shown that this occurs universally in people who over eat, particularly carbo hydrates, and as a result have too much adipose tissue. He has also proven that by a restriction of the carbo hydrates in these predisposed cases he is able to prevent the actual occurrence of diabetis. Dr. Johns, says that it will be possible in the future by testing the blood glucose tolerance of all adolescents to outline in a general way their diets so as to very materially reduce the number of diabetics in this country.

It is well known that the end result of cane sugar in the system is lactic acid, and it has been particularly well demonstrated that excessive amounts of lactic acid uses up or lessens the alkalinity of the blood and that the saliva loses its alkalinity, or the alkalinity of the saliva is reduced, so that certain classes of bacteria that live in slightly acid media become active, and the toxins from the bacteria produce the distruction of enamel. Hence, any kind of food that has a tendency to lower the alkalinity of the saliva is an important etiological factor in the production of dental caries. P. R. Thomas(10), maintains that candy, and carbo hydrates in other forms, are the worst enemy of sound teeth, for the reason

that the destruction of the teeth by caries is most easily induced by chemical substance lodged about the teeth. Hence, the importance of keeping the teeth clean.

Dr. Wiley(11), says that while sugar is an important food and is present in natural foods in very considerable quantities, it is not a natural food in its refined state. Sugar and candy do not form any tissue excepting fat. They nourish no bones or muscles. They do not enter into the structure of any brain or nerve cell and are not a part of any tooth or alveolar process. At a meeting of the school committee at Newton, Mass., October 18th, 1921, it was voted that the sale of chocolate and candy should not be allowed in the elementary schools of that city. This was passed upon as the result of questionaires sent to specialists in physiology and nutrition. Twenty-seven replies were received in answer to these questionaires, whether these sugars should be sold to school children. Twenty-five of the specialists replied in the negative. Two reported that it might be sold to them in small amounts if other foods were included.

Geo. E. Cornforth(12), states that we are eating altogether too much sugar and that we take it in too concentrated a form. He suggests that if we eat sugar in no more concentrated form than that in which it grows, we would not eat enough to do us any harm, but in the concentrated form of candy, confectionary, jam, jelly, syrups, juice from canned fruit, etc., it is so nutritious that it is very easy to eat enough of it to be detrimental to our health. The refining process of cane sugar removes some of the very valuable mineral salts that are necessary for the development of a child's teeth. Sugar cane juice is found to be health giving when fed to babies, while cane sugar when included too largely in the diet makes the building of sound teeth impossible, because its lime deficiency allows a decalcification, but in sugar cane there is an abundance of lime. Concentrated sugar is so nutritious that it actually satisfies and takes away the appetite so that there is no desire to eat wholesome foods.

Walter Seccombe(13), states that authorities are agreed that in modern life there is a serious over-indulgence of carbo hydrates and particularly of refined sugars. He has compiled statistics showing that in the United States there has been an increase of five hundred per cent in fifty years. That in the year 1865 there were eighteen pounds of sugar consumed per capita, but that in the year 1919 there were one hundred and ten pounds consumed per capita. In Canada the amount consumed was ninety-five pounds per capita. It is a fact, that countries with lower sugar consumption suffer less from dental caries. Government statistics indicate that the over-indulgence of sugar is most marked in the English speaking countries where dental diseases are most prevalent. One hundred and ten pounds of sugar is an average of over five ounces a day, and a man working hard in the open air can barely consume or oxidize that amount. Sugar is a concentrated food and used in excess it invariably irritates the digestive organs.

A case is reported in Preventative Dentistry from the Royal College of Dental Surgeons in London, in which a child twelve months of age had been entirely breast fed. The teeth were erupted at the normal time, almost completely denuded of enamel. There was a marked gingivitis and a tendency toward vomiting. Analysis of the mother's milk showed a very high sugar content and a very low proteid. The mother's diet had been confined entirely to bread, cake, jelly, jam, with an enormous amount of cane sugar in her tea and coffee. There were four children born in this family, the teeth all in the same condition, due to an unbalanced diet on the part of the mother.

McCollum(14), states that he has had a considerable number of mothers who have nursed their infants and these babies have developed rickets while being nursed, and that these mothers live on a diet of highly milled cereals, beef steak and potatoes. Such a diet is not fit for the production of a balanced milk supply. It is this diet in the nursing mother that is producing rickets so commonly in babies.

VITAMINS

When the United States took over the Philippine Islands in 1898, a small group of scientists were sent to correct the unsanitary conditions in their prisons. Everything pertaining to sanitation was carried out to the last degree, and the scientists saw to it that the rice for the prisoners was white and clean. In spite of all this sanitation, a peculiar disease, which was later called polyneuritis, increased very rapidly. This disease has come to be better known by the name of Beriberi, and is very common in Japan and the Philippine Islands, where the general diet is polished rice. A Dutch scientist, Eykman, produced this same disease experimentally in fowls by feeding them polished rice, and he immediately cured them by feeding them the polishings taken off of the rice. This disease has appeared in all countries. There was an epidemic among the prisoners in Elizabeth, N. J., in July 1914, because they were fed largely upon highly milled cereal products, polished rice, etc. The toll of this disease has run into millions in the last twenty-five years. The principle vitamin lacking in this condition is known as the Water Soluble B vitamin. Its principle source, outside of yeast, is the seeds of plants, eggs, and the milk of animals. Eddy(15) states that meat contains relatively little of this substance,

but glandular organs, such as the liver, kidneys and pancreas are fairly rich in it. It is also found in peas and beans, but in cereal grains it is restricted entirely to the germ portion and is reduced by the high degree of milling to which our cereals are subjected. White flour and polished rice are notable examples of the deficiency of the B vitamin, due to refined milling. Fruits, such as oranges, lemons, tomatoes, apples and grapes, contain a goodly amount of vitamin B. Vegetables, such as carrots, potatoes, turnips, contain a goodly amount. Nuts, eggs, milk and cheese contain Vitamin B in fair abundance. Cooking does not destroy the B vitamin if the temperature is not raised above the boiling point, and no alkalines are added before boiling. It is not necessary to go into further details of this disease of Beriberi, but medical men are familiar with its progressive paralysis of the nervous system, attendant with many other disorders of the body, resulting in coma and death.

Another deficiency disease has been known for centuries to occur among soldiers and sailors, who on account of the long voyages they were compelled to make, were unable to carry a large enough variety of foods for a balanced diet. This disease was commonly known as scurvy, due to the absence of what is called the C vitamin. Now according to Eddy, its richest sources are vegetables, such as cabbage, turnips, lettuce, water cress; fruits such as lemons, oranges, raspberries and tomatoes. Some of the vegetables such as potatoes have a special value in this respect, but meat and prepared milks are very low in antiscorbutic values. The susceptibility of this vitamin to drying and to heat and boiling makes it necessary to scrutinize vegetables very carefully in order not to ruin a good source by an improper preparation of it for the table. As soon as the cause of scurvy had been discovered, it became a matter of history until it suddenly appeared among infants. Medical men in attempting to protect and guard infants against such diseases as typhoid fever, tuberculosis, septic sore throats, etc., advocated thorough boiling or pasturization of the milk, and, inasmuch as Vitamin C is an unstable agent, it was destroyed by this heating process and scurvy became very prevalent among young babies. Now by adding orange juice or lemon juice in small quantities to the milk, scurvy has again passed into history except in the very poor and ignorant communities.

A third Vitamin, known as Fat Soluble A. Its most abundant sources are in milk, butter, egg yolk, fat and the green leaves of plants usually classed as salads, cabbage, lettuce, spinach, carrots and dandelion greens, contain this substance in considerable quantities. The germ of cereal is fairly rich in Fat Soluble A, but the rest of the grain is deficient, and therefore, the use of refined cereals, such as cream of wheat and white flour are much more deficient than the whole grain. Cooking has practically no effect upon the Fat Soluble A, and little attention need to be paid to the cooking temperature of cereals, as far as the vitamin content is concerned.

According to McCollum(16), the various deficiency diseases have attracted a very great deal of attention among the laboratory workers and scientists in general for several years. The result of treatment of these diseases is very spectacular. For instance, we have seen a very violent, acute case of scurvy cured in a few days by the mere administration of a small amount of orange or lemon juice. Also the curing of Beriberi by merely administering the polishings taken off of rice, also the cure of rickets by the administration of cod liver oil, phosphorus and calcium. In such cases we find that the Fat Soluble Vitamin A, in combination with the salt, calcium and phosphates produce the spectacular cure. However, we must not forget that we no longer encounter the frank out and out cases of these deficiency diseases, but we have border-line cases which are extremely difficult to diagnose. These may be found in what is known as border-line malnutrition, a malnutrition in which the characteristic symptoms of one of the deficiency diseases are either lacking or only slightly suggested. It may be a malnutrition of a type which lowers the efficiency of the individual and breaks down his power of defense against the invasion of micro-organisms. This leads to a more rapid decay of the organism than normally expected. McCollum summarizes the steps that have been made in the last seven years relative to food values and makes the following interesting summary and generalization. It does not matter what the composition of the diet may be. It does not matter what variety of food stuffs it may contain or how the menu may be changed from day to day, so long as the food supply is derived from a list of properly balanced food stuffs. In making up the proper list of food stuffs it will be necessary that we be weaned from many of the predjudices of the past. These predjudices and beliefs have been handed down for generations and are due to two things, first, a misunderstanding of the proper balancing of diets and second, to the convenience of foods. For example, cereals have been heralded throughout the country as being one of the best and important articles of our diet. Now we are just learning that it would be practically impossible to live upon cereals alone, as they are used today. We are victims of circumstances. In the earlier days we did not use cereals to such an extent because the growth of grass

was the great bane of agriculture With the event of scientific farming, by the use of implements such as the plow, the harrow and the pulverizer, it became possible to overcome the rank growth of grass throughout our prairies and cereals were raised on a large scale. Men with commercial traits of mind were quick to grasp at the advantage of raising enormous amounts of cereals, preparing them for the market in easily handled vehicles and advertising them broadcast as the chief and stable article of diet. It is easy to sell anything that is widely advertised, and thus you may see, that because of various physical conditions, the raising of cereals became possible, its marketing simple, and its use convenient. Now we are learning that it is a distinct detriment to use any one article of food to the exclusion of others.

McCollum(17) has said that there are only three types of diets which afford certainty of any nutrition for man or animal, and only the three will ever suffice. They are first, the strictly carnivorous diet, examples of animals using this diet are the wolf and tiger, and among birds, the vulture. The reason that their diet is strictly balanced is because they consume all parts of the animal they eat. They get not only the plain muscle cuts, such as we get at the market, but they get the glandular tissue such as the liver, the spleen, the pancreas and kidneys, which contain many valuable vitamins, and also the bone and the nerve tissue which also contains other valuable vitamins, so that a strictly carnivorous diet is really a balanced diet.

The second type of diet is that of the grazing or herbivorous type. We have an example in such an animal as the bison, which lives year after year upon the various grasses of the plains. It eats the leaves and shrubs and plants and succeeds in building up and maintaining a healthy nutrition. This may be spoken of as the leaf type of nutrition which is successful.

There is in addition the third type to be considered, known as the oriental or omnivorous type. Arthur H. Bailey of the Experimental Station of Cornell University, who is familiar with the diets of China, has called our attention to this particular type of food. They live upon whole wheat, some pork, eggs, poultry and a small amount of other things, but the outstanding feature of their diet is the green leaf vegetables. The fact that the Orientals put such large quantities of leafy vegetables into their diet has made their life possible. But with this type of diet they are not as well developed physically or mentally, nor as aggresive or strong as those with a more balanced type of diet.

Are we not now in a position to answer some of our own questions? Why have our early predecessors been free from dental caries? The Eskimos have been living essentially upon a carnivorous diet. They lived upon lean meat and fats from animals, from milk, butter, cream, poultry, eggs of fowls, etc. Why have they been free from dental caries? The wandering Mongolians of Central Asia, the Arabs and Hollanders and some of the pastoral tribes of Northern Scotland, who lived entirely upon dairy products had no dental caries. Why have they been free from dental caries? In light of our newer nutrition by McCollum we appreciate that the carnivora have a balanced diet. The Orientals, who live on an omnivorous diet are on a well balanced diet. They are free from dental caries. Does the balanced diet prevent dental caries? The wild animals, carnivora, are on a balanced diet, for when a tiger devours a calf, he consumes not only the muscles but the fat, the bones, the blood, the liver, the pancreas, spleen and kidneys, and so gets all the forms of food and all three kinds of vitamins. The bison is on a well balanced diet. Its enormous gastro intestinal system makes it possible for it to consume enough of the green leaves and herbs to convey all forms of food and vitamin. It has no dental caries. Does not our knowledge of diet explain the good teeth of the bison?

SUMMARY

We have attempted to point out the various tribes and nations who have been practically free from dental caries. In each of these cases we have pointed out the balanced diet upon which they have existed and which we believe is one of the reasons for perfect dentition. We have also mentioned how these tribes, such as the Indians and Eskimos came in contact with our present civilization, which has changed their methods of diet largely, and how they immediately have become susceptible to the dental caries so characteristic of the great English speaking race. We have mentioned the various types of animals, those belonging to the great carnivora, also those belonging to the herbivora. We have shown how naturally free they have been from dental caries and we have pointed out the similarity between their diet and those of the original tribes. We have shown how their diets contained not only the fat, carbo hydrates and proteids, but the mineral salts and vitamins as well. We have shown furthermore by the experimental method upon various laboratory animals that by changing the articles of diet we were able at will to change their rate of growth, their degree of maturity, their ability to reproduce, their attitude, their longevity, and dental caries as well. We have also shown you by controls in these cases what the controlling factors in the diet are. We have pointed out the various diseases common to civilization which have

been found to be due to deficiencies in the various articles of diet. The chemical influence of diet upon caries has been established, and we come now to offer to you a few simple suggestions as to the treatment which should be instituted, commencing during a child's prenatal life and extending until it reaches maturity. Purely a prophylactic treatment.

Dr. McCollum(18) says the teeth are a part of the skeleton and their development is governed by the same things that govern the growth of the bones. The diet must be adjusted or they will undergo faulty development. He has shown that the lack of balance between the calciums and phosphates and Fat Soluble A is the cause of rickets, in which there is a decalcification of the bones. There is also the same decalcification of the teeth. The enamel is put on the teeth long before they are erupted, it is not deposited simultaneously in a uniform layer over the tooth, but develops from certain centers. One of these centers is started at the apex of the molars and from these points the enamel spreads until the several areas meet. Here they must form a perfect union if the teeth are to be free from decay. As a matter of fact there are common defects in the enamel. It is often too thin to form a satisfactory covering for the teeth. Furthermore, under improper diet the root fails to develop. Thus we have teeth that are susceptible to decay because they are not normally developed. The developmental factor is of cardinal importance from the standpoint of preventative dentistry. It is only the teeth with the best development that can withstand the abuse common to childhood. While mouth hygiene is extremely important and the use of the tooth brush is to be encouraged, yet dental caries is common only among the nations that use the tooth brush. It is actually impossible to keep the teeth bacteriologically clean, therefore, the real factor of fundamental importance in the prevention of tooth decay is a developmental one, and it is important that this developmental process be brought about by the properly balanced diet in the pregnant mother and in the growing infant. The greatest stress should be placed upon the first six years of life, because after the teeth are once erupted, improvement is impossible.

If these principles, advocated by our best men of science are true, then the preventative treatment of dental caries is most important. It demands the awakening of both the medical and dental profession to the new facts and then through the medium of these two wonderful professions an arousing of the general public consciousness to the fact that the solution of this problem is within their own hands. At the present time the faddists and the pseudo authors have the public eye through the popular magazines. In conjunction with them are the manufacturers who are actuated only by mercenary motives and who are flooding the market with vitamin and yeast vitamin and chocolate yeast and vita food. Let us not be swept away looking for such a panacea. Let us choose for ourselves a diet balanced with fats, proteids, carbo hydrates, minerals and vitamins.

The following generalization may be helpful. This classification covers food materials according to their use in the body.

1. Fuel food—(a) starchy food, corn starch, flour, tapioca, macaroni, spaghetti, crackers, rice, hominy, corn meal, etc., bread. (b) sugar and sweet foods, sugar, molasses, honey, sirups. (c) fat foods, butter, lard, oleomargarine, olive oil, bacon, cream.

2. Building material foods—(a) for muscle, milk, eggs, meat, fish, cheese (cottage and cream), beans, lentils, water. (b) for bones and teeth, milk, green vegetables, fruits.

3. Regulating foods or vitamins—Milk, green vegetables, fruits, water.

4. Growth and health foods—Milk, butter, green vegetables, fruits.

These are general statements, but they are sufficient to convey to you that a man living on cereals, meat and potatoes and fruit is not on a balanced ration. Let us as physicians avoid fads, patent vitamin foods and tablets, predigested foods and extremes of all kinds. Let us apply as much ingenuity and thought to dietetics as we do to the mechanical phase of dentistry and medicine and we will cure one defect which hastens the deterioration of civilization.

BIBLIOGRAPHY

Note—The authors mentioned in the bibliography have been freely quoted and abstracted.

1—The Annals of the American Academy of Olitical and Social Science. Vol. XCVIII, No. 187, Nov. 1921, page 44. (Hartman).
2—McCollum—Journal of the National Dental Association, Vol. 9, No. 4, April, 1922.
3—McKay—The Dental Cosmos, Vol. LXII, No. 2, Feb. 1920.
4—Welker—Journal of National Dental Association, July 1921, Page 552.
5—H. J. Johns, Ohio State Medical Journal, Dec. 1921.
6—McCollum—The Journal of National Dental Association, Vol. 9, No. 4, April, 1922.
7—Percy R. Howe—Journal of National Dental Association, Jan. 1922, page 55, page 57, page 59.
8—A. P. Rogers, Arch of Pediatrics, Vol. XXIX, No. 3, March, 1922, page 138.
9—E. C. Kirk—Dental Cosmos, Vol. LXII, No. 12, December, 1920, page 1375.
10—P. R. Thomas—Journal of National Dental Association, Vol. 7, No. 10, October, 1920, page 869.
11—Dr. Wiley—Good Housekeeping, Jan. 1922.
12—George E. Cornforth—Life and Health, Washington, D. C.
13—Walter Seccombe, The Journal of National Dental Association, June 1921, page 443.
14—McCollum—Journal of National Dental Association, April 1922.
15—Eddy—The Vitamin Manuel, page 88.
16—McCollum—Journal of National Dental Association, Vol. 9, No. 4, page 313, 1922.
17—Annals of American Academy of Political and Social Science, Vol. XCVIII, No. 187, Nov. 1921. (McCollum).
18—McCollum—The Annals of American Academy of Political and Social Science, Vol. XVIII, No. 187, Nov. 1921, Page 43.

THE ROLE OF ACIDIFIED MILK IN INFANT FEEDING*

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It has long been known that buttermilk or lactic acid milk is a food of great value for infants suffering from disturbances of nutrition. The beneficial effects of this milk have been attributed by some to the lactic acid bacteria present in the milk, and cultures of lactic acid bacteria have been fed to infants suffering from various nutritional disturbances. Metchnikoff attributed the longevity of the Bulgarian peasants to their use of soured milk and the organism called the Bacillus Bulgaricus has been used for many conditions both in adults and infants. Recently Rettger of Yale has shown that the Bacillus Bulgaricus cannot be permanently transplanted into the intestinal canal and its action consists in allowing the Bacillus Acidophilus to develop freely. Rettger advocates the use of Bacillus Acidophilus milk in various intestinal conditions instead of Bacillus Bulgaricus milk. It has never been definitely proven that the beneficial effects of sour milk in infant feeding have been due to the organisms contained in the milk.

On the other hand a simpler and better explanation has been advanced based on purely chemical facts. These facts have recently been discussed again by Marriott(1). Cow's milk and human milk vary greatly in their "buffer value." The large amount of protein and salts in cow's milk enables it to take up a considerable quantity of hydrochloric acid without a change in chemical reaction. In other words, if we take equal amounts of cow's milk and human milk and add an indicator to each, such as neutral red, we will find that it will take about three times as much hydrochloric acid with cow's milk to cause an acid reaction with the indicator. Hahn(2) has shown that when milk enters the stomach of a normal infant the stomach contents ultimately reach an acidity of 1x10-5, expressed in terms of hydrogenion concentration. This acidity allows rennin action to procede most advantageously and is sufficient to markedly inhibit bacterial growth. The presence of acid on the gastric side of the pylorus initiates a reflex, called the pyloric-opening reflex, which allows the food to pass into the duodenum. Cowie(3) and Lyon have experimentally demonstrated this reflex in normal infants and have shown that the stomach evacuation is increased in proportion to the amount of acid taken up by the milk proteins (which substances we now properly designate by the term "buffer substances.") The presence of acid in the duodenum stimulates the flow of biliary and pancreatic enzymes through the hormone, secretin. Thus we can see how important it is that free acid be present in the duodenum. We know that infants suffering from malnutrition or marasmus may have a diminished secretion of hydrochloric acid.

If the amount of hydrochloric acid in the stomach is not sufficient several things happen. Rennin action and bacterial inhibition occur only to a slight degree. Also there is a diminished secretion of pancreatic and biliary ferments. As a result the infant does not digest his food properly and will not thrive. When lactic acid milk is fed to such an infant, the diminished amount of hydrochloric acid will be sufficient, as the buffer substances in the milk have already been neutralized. The milk is well digested and large amounts can be fed with safety so that we can supply the undernourished infant with all the calories he needs. It is easy for anyone to demonstrate this fact for himself if he has not already done so.

A very young infant can safely be fed undiluted milk if it is given in the form of acidfied milk, while we would hardly dare to feed undiluted cow's milk to an infant until he has reached the latter part of the first year.

Brennerman(4) has shown that lactic acid milk leaves the stomach very rapidly. His subject was given a pint of buttermilk to drink. In two hours the stomach was nearly empty with practically no curds. This brings up the point of curd formation. The acidified milk is already coagulated and the curds are fine and soft. Recoagulation does not occur in the stomach. This is another advantageous point in infant feeding as it insures complete digestion and absorption of the protein. The view held in this clinic is that the lactic acid milk offers the normal stimulus for the opening duodenal reflex. This, together with the softness of the curd, favors rapid evacuation of the stomach contents.

Incidentally the use of lactic acid milk in infantile eczema may be mentioned. Many of these cases are due to sensitization to the protein of cow's milk. Anything which alters cow's milk protein has a beneficial influence. Cow's milk protein has been altered by boiling, peptonizing and acidifying. Clinically lactic acid milk is a valuable food in eczema.

From these statements it seems clear that much of the beneficial effect of lactic acid milk can be explained on purely chemical grounds. That the bacteria have a beneficial influence is not denied, but it has never been actually proven. It occurred to us to try the effect of lactic acid milk prepared by merely adding C.

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P. lactic acid to cow's milk. Lactic acid can be purchased in a pure state, it is not expensive considering the small amount that is used. It is a heavy syrupy liquid with the characteristic odor. Cow's milk was raised to the boiling point and cooled. Lactic acid was added drop by drop with constant stirring until fine flocculent curds were formed. When this milk was titrated with N/10 NaOH, using phenolphthalein as an indicator, it was found to have a total acidity of about 50. The taste was pleasant and infants took it readily. Infants receiving lactic acid milk made with bacterial cultures were suddenly changed over to this milk. They apparently handled it as well as the other kind. Infants have been fed on this milk for periods of several months to a year with satisfactory gains in weight. Dr. Miller of the Obstetrics Department has used this milk in feeding very young infants with satisfactory results. It is not claimed that lactic acid milk made in this manner is any better than the ordinary lactic acid milk. We were interested in finding out if it was as good. It seemed to offer a clinical means of determining whether the lactic acid bacteria were essential to the success of lactic acid milk. From our results we would say that they are not. This milk can be made up quickly and any mother can be told to drop the acid in the milk until it just curdles. The cost is trifling, as it usually takes about 6 to 8 cc to a quart of milk. Another point is that the acidity of the milk can be absolutely controlled. If buttermilk is too acid it delays the stomach emptying time and causes vomiting.

CONCLUSIONS

1. Milk acidified with lactic acid can apparently be substituted for lactic acid milk prepared by inoculation with bacteria.

2. The value of lactic acid milk seems to be due to chemical changes rather than the bacteria contained in the milk.

1—Marriott, Harvey Lectures, March 27, 1920.
2—Hahn, Am. J. Diseases Child. VII, 305, 1914.
3—Cowie and Lyon, Amer. J. Diseases Child. 1911, II, 252.
4—Brennerman, Archives Ped. 1917.

A SIMPLE, PRACTICAL METHOD FOR THE FEEDING OF INFANTS*

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We have had a great many requests from physicians visiting the clinic and physicians referring patients to the clinic for a detailed description of the simple routine method of infant feeding we use in the Pediatric Department, University Hospital. This is the reason for bringing this subject to your attention at this time. It probably would be more to the point to present this paper to that section of the society which is not especially interested in Pediatrics as I fully appreciate that those present are very familiar with the various methods of infant feeding and doubtless have systems of their own which are as simple as the one I wish to present.

I think the pediatrist cannot be expected to feed all the babies that are born. My understanding is that he does not aspire to this position. He rather prefers to have problems presented to him to straighten out, and to devote his time to the study of juvenile medicine. Accordingly, every doctor who engages in general practice, the large percent of which is almost necessarily made up of children, should have at his intelligent command a simple trustworthy method for hand feeding.

The large number of babies attending clinics, not only those conducted at the University Hospital, but particularly those in large cities—Child Welfare Clinics, etc.—illustrate very forcibly that the large majority of family physicians have no practical method for attacking the problem of normal infant feeding. Those of us who have worked in this field for any considerable number of years have necessarily put much thought on this subject. We have not tied ourselves up to any dogmatic scheme of infant feeding, but have varied our own methods from time to time and have tried out the many methods proposed by others.

When I first became interested in the subject of Pediatrics I naturally endeavored to acquaint myself with the better methods in use at that time. The thing that struck me most forcibly then was that the majority of physicians interested in the feeding of infants carried in their pockets a card or booklet of some sort which would enable them to pick out a formula furnishing the desired percentage of fat, protein and carbohydrate, the proper amount for each feed, the feeding intervals, etc., etc. To me this seemed to be entirely wrong. My first idea was to eliminate for myself the necessity for books, notes, and pocket cards. The infant before you, it seemed to me, should be all that was necessary to enable one to choose its food. In order to do this one must have the fundamental knowledge within him to perform the task, the same as one must have the fundamental knowledge of mathematics in order to engage in any business enterprise or proceed with higher mathematics.

As the percentage method, so-called, was in vogue at that time, it seemed to me that a very simple proceedure could be very easily worked out whereby a student or a physician could ac-

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tually determine by figuring, without reference to cards, the actual amount of fat, protein, carbohydrate and salts that would be necessary to nourish a given case. It soon became evident that it was fruitless to imitate exactly the percentages found in mother's milk. Mother's milk could be held up as an example of the amounts of the various food constituents that a child could handle. The chief difficulty in modifying milk then seemed to come from the high percentage of protein in cow's milk. The fat, although present in the same amount as in woman's milk, reacted differently in the infant's ailimentary canal for well known reasons. The sugar on the other hand was a factor easy to adjust. The longer we studied the problem, the more we became convinced that ordinary milk, sugar, water, and *thought* is all that is necessary to employ in the successful feeding of the very large majority of infants, who for one reason or another, are compelled to be deprived of the benefits of maternal nursing.

There is no longer any question about the ability of the infant's stomach and entire digestive tube to handle the various food constituents with ease. The whole scheme of infant feeding seems to be to determine the individual tolerance to these various food constituents, For this reason it is impossible to lay down a set of formulae which can be handed out from a Maternity Ward or an Infant Welfare Clinic that will fit every infant. It might be wrong to force a parent to keep an infant on such a schedule. The infant must be treated as an individual case. Accordingly there must be definite principles that will apply to him.

With these ideas in mind we gradually developed and have had in use, as our basic method of feeding at the University Hospital, for the past 7 or 8 years, a method which grew out of and is dependant upon the observation I made in reviewing a large series of feeding cases, that the amount of sugar added to the formula very seldom exceeded one ounce. Taking this as a basis it was very easy to work out a simple method which required the knowledge of only a few fundamental principles.

First, the normal infant requires 45 calories per pound or 100 calories per kilogram body weight to maintain its weight. Let us in dealing with the public adapt ourselves to their standards of measure. An ounce can be as accurately weighed as a gram. We were never able to produce stationary weights or moderate gains in weight on 70 calories per kilogram as has been recommended in some of the European clinics. This 45 calories per pound we recognized as the energy line and on our bedside charts we have plotted it as the energy line, to the level of which the food must come before we could expect any upward movement in the weight curve. After reaching this energy line we found, if 30 calories more food were added, it furnished a good optimum tolerance line. Many infants can tolerate much more food than this. It should be our aim to develop an infant to his best weight. This best weight is that which may exceed the standard a little, taking into consideration his family type, but not that which enters the threshold of obesity. Some infants grow more rapidly on the energy line than others do on the so-called optimum line. On the other hand many infants thrive, similate, and metabolize very much larger quantities of food than is indicated by either of these lines. The upper border of the limit of their food utilization we designate as the maximum line or maximum tolerance.

For all practical purposes we are quite sure that an infant who approaches anywhere near the normal weight for his age can be started on a formula which furnishes 45 calories per pound. If the child is underweight, and particularly if the child has had any abnormal reaction to the food previously fed, we start the formula below the energy line, always assuring the parent that we expect no increase in the baby's weight until the food reaches the line or until the infant adjusts itself to the mixture prescribed. This latter point is a very important one. You have all had experience with infants who are thriving beautifully on what we might call bad mixtures. An infant will adapt himself to almost any kind of food if he is given a chance. It is the frequent changing of bad formulas that are productive of so much harm. All changes, particularly in an upward direction, should be very gradual.

After determining upon one ounce of sugar as a constant factor and accepting all sugars—lactose, maltose-dextrin preparations, etc., as containing 120 calories per ounce, it became a very simple problem to know how much milk was necessary for the balance of the daily food. For example, if an infant weighed 10 pounds he would require 10 times 45—120 which equals 330, the number of calories that must come from milk. If there are 21 calories in an ounce of milk (4% milk), 330 divided by 21 equals 15½ ounces, the amount of milk necessary to balance the energy requirement. The rest of the formula is made up with water.

The amount of water to be added depends upon two factors—one of which is prima facie, an individual factor; one may consider the anatomic stomach capacity alone or he may have to consider the physiologic stomach capacity. A safe rule, one which we have proved

out many times, is, that the stomach will hold one ounce more than the infant is months old up to 8 ounces, 8 ounces being the maximum size feed for the first year.

The question of concentration will be raised at this point for it will be found by adhering closely to this rule that some infants, even though young, may be compelled to take a much more concentrated food than has usually been thought safe or best. I think as the knowledge of infant feeding progresses, we are becoming more convinced that concentrated solutions very frequently react better in an infant's stomach than dilute solutions. It is my opinion that the greatest difficulty in the early days of infancy may come from the concentration that would naturally result from the application of this rule. On the other hand, should it occur, only a little *thought* would be necessary to enable one to determine that the infant could take a little more water in each feed, thus lessening the concentration. The physiologic stomach capacity is easily determined by the passage of a gastric catheter at the end of the feeding interval. It should not be forgotten when thinking of concentration or dilution that 80% of the milk added to a formula is water.

If one should feed such a mixture as described above, even in proper amounts and at the most proper times, he might almost surely experience failure. He might even be justified in condemning the method. The entire success of this method depends upon a fact which has been demonstrated over and over again, but which has not yet permeated the entire medical profession, and particularly the workers in Child Welfare establishments, that boiled cow's milk or heated milk is much more easily digested, and much more easily handled by the infant's digestive tube than fresh milk. As soon as physicians who are wedded to the idea of fresh certified milk recognize this fact just so soon, I believe, will their difficulties in the intelligent management of infant feeding disappear. This fact in no way depreciates the beneficial effects derived from pure fresh certified milk, providing the milk does not contain more than 4% fat. A milk poor in fat is much better, on general principles, than a milk rich in fat if we are going to feed whole milk dilutions. Whole milk dilutions are much better than cream dilutions for the simple reason that the percentage of fat in whole milk varies very little, usually not more than 1%, while gravity cream and centrifugal cream and top milk are notoriously liable to vary in their fat content.

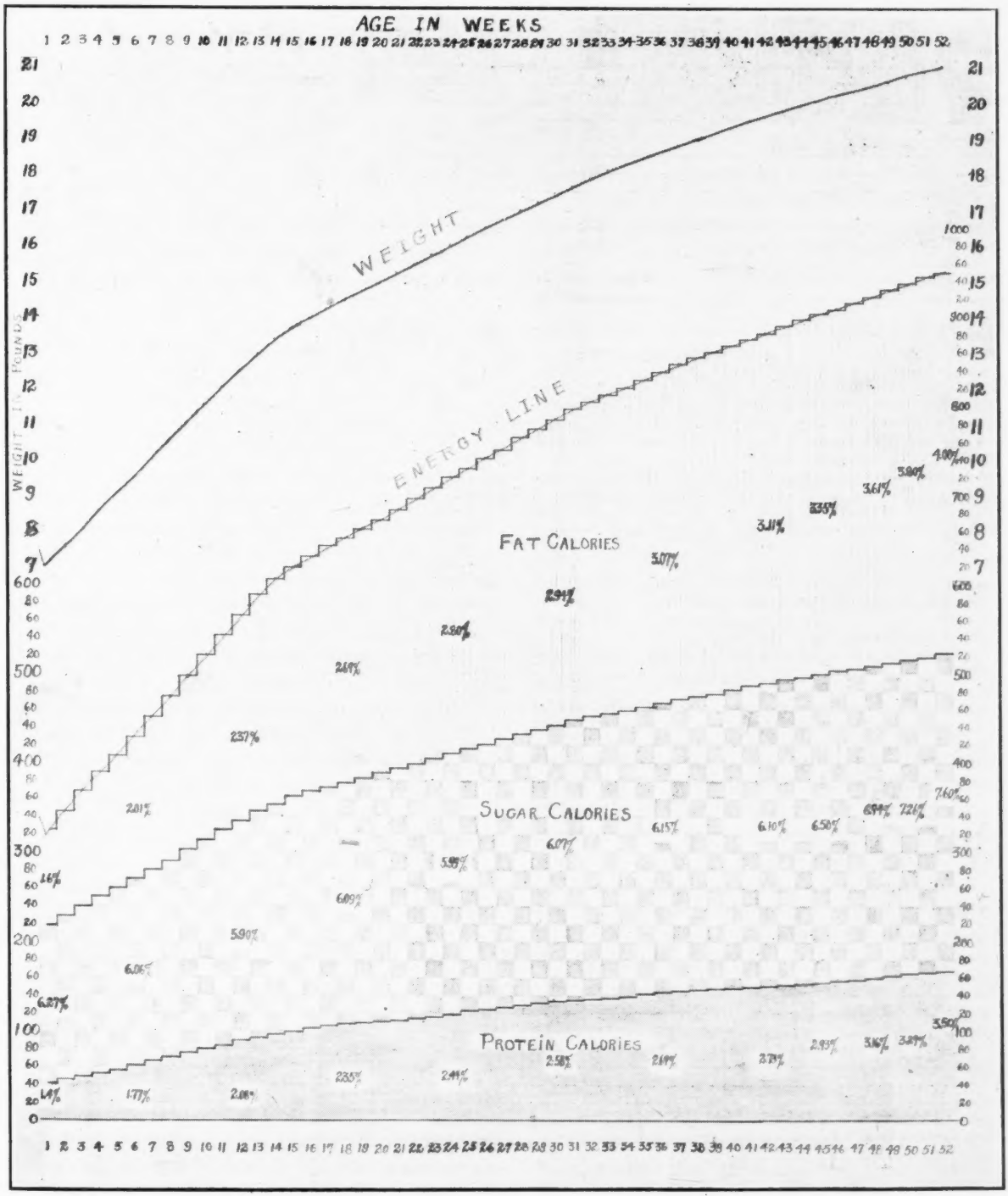
A few more words should be said on the importance of pasteurization or boiling milk. We have had, during the past month, a case of abdominal tuberculosis in an infant 9 months old. The abdomen was filled with an irregular mass which we diagnosed abdominal tuberculosis, and which on laporotomy proved to be tuberculosis of the mesenteric glands and omentum. Further investigation seems to show that this is a case of bovine tuberculosis. History shows that this child was artifically fed from the week after birth. The milk was not pasteurized or sterilized. As there seems to be every evidence that this case is not of respiratory origin and was not exposed, so far as the parents know to any case of tuberculosis, it seems reasonable to say that had this child been fed by the above method, which insists on sterilization or pasteurization, it would not have developed tuberculosis. Nor can we trust certified milk. I know of a well authenticated case of bovine tuberculosis in an infant who had been fed only certified milk of supposed highest quality. When I speak of pasteurization and sterilization, I do not mean municipal pasteurization or sterilization. I mean the simple pasteurization or sterilization as carried on in the home after the formula has been made up, whether the milk has previously been heated or not. Re-pasteurization or sterilization has not been productive of any harm in my experience.

If one feeds formulae prepared as described up to the present writing, one may still fail to succeed in the feeding of infants in a certain percentage of cases. This food alone is entirely insufficient, even though an infant may go through the first year, attain a normal weight, attain normal physical development as far as we are able to recognize. He may have been robbed of some factor that he should have received in his food that may produce an effect in his constitution. It is a remarkable fact that a comparatively small percent of infants develop scurvey on pasteurized or boiled milk, but as quite a considerable number of cases of scurvey do occur, and because we know that cooked milk as a constant diet may contribute to the development of scurvey, this objection, as all know, may be entirely overcome by the daily feeding of a teaspoonful of orange or tomato juice. This practice is obligatory with the method detailed above.

At first sight one might be led to think that at certain times during the year the amount of sugar present in the infant's food would be greatly in excess. However, if one calculates the percent of sugar present during the first year, induced by the addition of one ounce of sugar to the formula, he will find that it does not reach 7% until the end of the year excepting possibly during the first week or two. The accompanying chart gives a graphic repre-

sentation of the amounts of fat, protein and sugar fed in a hypothetical case for one year. Knowing the amounts of the various food constituents it is a very simple arithmetical task to find the percentages of the various constituents if one cares to know them. It should be remembered that with all methods of infant feeding—so-called percentage methods and caloric methods—the fundamental idea is that a child should not get below his minimum requirements of protein, fat and carbohydrate. By checking back on this method it will be found that these elements are well within the normal limits. Any excess of protein, so far as experience has shown up to the present time, is not injurious. The mixtures carry sufficient fat to prevent any injury coming from an inadequate amount of fat soluble vitamine.

If physicians would spend an hour or two in a careful consideration of this simple plan of infant feeding, it would not be long before the difficult feeding cases would disappear from



To illustrate the amounts and percentages of protein, carbohydrate, and fat that would result from using one ounce of sugar as a constant factor, and varying amounts of milk to make up the total calories. Vegetables and cereals are added to the diet after the eighth month, but do not figure in the chart.

the Welfare Clinics and Baby Clinics in general. Infant mortality would be very much reduced, provided the physician shows an interest in the management of the infant, and instructing the mother in the right way of bringing up her child.

One more point which applies particularly to the abnormal infant—rate of stomach evacuation. If trouble occurs this must be determined. It will frequently be found that an infant who cannot evacuate three ounces of food in three hours will evacuate it perfectly if the load is divided and an ounce is fed every hour, or the infant who cannot evacuate the necessarily large load, delivered to the stomach on a four-hour schedule, may handle it with ease if it is delivered to the stomach in smaller amounts at more frequent intervals.

Having this method of selecting the infant's food well in hand, the further progress of the case depends upon the two variables, milk and water. Additions of milk and water must be made gradually, one-fourth or one-half ounce at a time in the entire daily mixture. This changes the proportions so little that the increased work of the digestive apparatus is usually negligable. On the other hand, stepping up from one-fourth to one-half, or one-half to two-thirds milk is frequently too sudden a change.

It will be understood that the chart simply shows how an infant can be fed up to the end of the first year with milk, sugar and water. We recognize the fact in the actual handling of a case that vegetables and cereals are necessary after the eighth month. Time does not suffice to go into this further.

Having determined the food for a given case how may we give instruction to the mother for the infant's feeding for the succeeding weeks or months as the case may be. It will be observed that by adding two ounces of milk to a mixture there will be enough calories furnished to produce practically a gain of one pound in weight. In practice this often actually happens. After watching the progress of a case and knowing the infant's reaction to the food, one may add one, two, or three ounces of milk by the gradual process—¼ ounce a day or in some cases ½ ounce, until the stated amount is added. So long as the infant makes a normal weekly gain, there is no need for increasing the food.

TREATMENT OF ALIMENTARY INTOXICATION AND REPORT OF CASES

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In 1908, Finkelstein and his colleagues first introduced the term "Alimentary Intoxication" in naming the condition which had been formerly known as "Cholera Infantum"—"Toxicosis"—"Gastro Intestinal Intoxication"—"Dysentery"—"Infectious Diarrhea"—"Ileocolitis" and "Summer Diarrhea." They considered it a "Food Poisoning," and believed that infection and constitutional abnormalities were chiefly contributory factors because they lowered the infant's tolerance for food, that is, the ability to utilize food without the production of harmful substances. The basis for this belief was due to the fact that many of the symptoms were aggravated when excessive food was given. Finkelstein also laid emphasis upon the following clinical picture—the disturbed sensorium, fever, collapse, diarrhea, heavy breathing, albuminuria, cylinduria, glycosuria, leucocytosis, and rapid loss in weight. Thus is easily diagnosed from the ordinary "Summer Diarrhea," but the treatment is vastly different.

Since that time various explanations have been given as to the causative factors in Alimentary Intoxication. Marriott has, through his recent investigations, brought out the term "Anhydremia." His work on the blood concentration due to the rapid loss of body fluids in this condition, has not altogether changed our methods of treatment, but it has, to a great extent, made us act more quickly in getting some immediate relief to those infants suffering profound shock from rapid dehydration.

In taking up the treatment of alimentary intoxication, I feel that we must lay stress upon the prophylactic treatment. It is my belief that we do not always lay enough emphasis upon the prevention of overheating of infants by clothing, etc.—the care of food, the use of sugar, the promiscuous giving of food from the table, and the general hygienic care of children. We should begin our instruction of mothers early in the spring months in regard to the proper dress for the child, the kind of food to be given, and the general care of the infant during the summer months. We all know the considerable part that heat plays in the development of intestinal disorders. Diarrheas have been produced, experimentally, by overheating. We also know that decomposed food and foods rich in sugar (particularly cane and milk sugars) are instrumental in bringing about a toxic state. It is also a fact, that infants who do not receive the proper amount of fresh air, daily baths, etc., are prone to develop this condition. If we can, by the establishment of more prophylactic baby welfare stations in the larger cities, and of traveling clinics in the outlying districts, give more instruction to mothers of the poorer classes, we will go a long way in the prevention of Alimentary Intoxication.

However, when the toxic symptoms have become established, the strictest treatment must be followed at once. All food must be discontinued immediately, and all emphasis must be placed upon the supplying of fluid, either by mouth, proctoclysis, hyperdermoclysis, intraperitoneally, or intravenously, to make up for the great loss of body fluids by dehydration. As to the giving of this fluid, I have found that the intraperitoneal route, alternating with hypodermoclysis, gives the most satisfactory results. I have been in the habit of giving from 100 to 150 cc. of a 5% glucose solution in normal saline intraperitoneally once in 24 hours, and have given 100 cc. of normal saline by hypodermoclysis twice in 24 hours, thus supplying fluid every eight hours. This is kept up for several days, or until the condition of shock disappears. Soda water (one scant teaspoonful of sodium bicarbonate to a quart of water) or a 2% barley water are given by mouth in small doses as the vomiting permits.

For stimulation I find that the use of caffein-sodium-benzoate grs. ½ by hypo every four hours is usually enough, but in cases of profound shock, I generally use from 3 to 5 mim. of adrenalin hydrochloride (1-1000 solution) by hypo every hour hours, or alternate it with from ½ to 1 gr. camphor in oil. If the diarrhea is very severe and the vomiting allows, I am inclined to give bismuth subgallate 5 grs. suspended in acascia every three hours by mouth, and occasionally I have given "paregoric," or the deodorized tincture of opium with this mixture. *Under no consideration do I give any cathartics.*

At the end of from 24 to 48 hours of starvation, feeding must again be instituted in fractional doses at 2 to 3 hour intervals, and, as the weight tends to become stationary, a very cautious and gradual increase may be made both in the dosage and the length of feeding interval.

As to the choice of food, I have found that breast milk (if obtainable) in conjunction with buttermilk, has given the best results in the most severe cases. In other cases I have used with good success, skimmed milk (boiled 10 minutes) together with buttermilk, or bacillus bulgaricus in the culture or tablet form, gradually replacing the skimmed milk with whole milk, and slowly adding some form of malt sugar, such as Dextri-maltose, up to 5%. In some cases where the child had, previously to the acute attack, been poorly nourished, and where subsequently there had developed a state of intestinal decomposition, I have used albumin milk with Dextri-maltose beginning with a 2% solution and increasing gradually to a 5 or even a 7% solution. The indications for the feeding of each individual case must be governed largely by the previous history, but whatever the choice of food may be, the course of fractional dosage and gradually increased feeding interval must be rigidly adhered to. Additions to the food may be made more rapidly as time goes on and the weight is maintained.

The hygienic treatment must be given its full share of consideration along with the dietetic and medicinal treatment. Fresh air is very essential. The room should be well ventilated, and in the summer months the child should be kept out of doors. The clothing, in hot weather, should consist of a thin cotton band and diaper, or diaper alone. The child should be kept absolutely clean, not only by bathing, but by cleaning the buttocks thoroughly after each bowel movement.

Complications, such as, pyelo-cystitis, otitis media, furunculosis, pneumonia, oedema, convulsions and pemphigus should be watched for and treated as they present themselves.

To illustrate the course of treatment in alimentary intoxication which I have just outlined, I wish to present two case reports.

Case Report 1.—Baby J. M., age 3½ months. Male.

Present illness began five days ago, following a slight head cold. At that time weighed 12 pounds. Had a great many loose stools the first day. Next day the stools increased in number and were very watery. The mother took the child to a clinic, and was advised to give the baby rice water. She followed this advice for three days, but the condition of the child became rapidly worse and she brought the baby to my office.

Physical Examination—The condition of collapse was quite apparent. Temp. 103 R. Respiration very rapid and shallow at times, and then again slow and sighing as in air hunger. Pulse 132—sharp and snappy. Marked dehydration. Weight 9½ pounds. Skin dry and of a grayish tinge. Anterior fontanelle and eyes sunken in. Eyes rolled upward. Ears negative. Pharynx slightly congested. Heart and lungs negative. Abdomen distended. Cried on handling.

Past History—The mother (girl of 18) weaned baby at three weeks. Said her milk dried up. Gave Eagle Brand condensed milk, and the child got along apparently all right. Gained in weight and was generally happy and content. For past month mother has been working and has left the child in care of her younger sister, (age 15). One week ago the baby developed a head cold which had apparently cleared up before the present trouble began.

The child was sent at once to Grace Hospital, and the following treatment instituted.

1. Nothing given by mouth except soda water (one teaspoonful soda bicarbonate to quart of water) in dram doses.
2. 100 cc. of 5% glucose in normal saline given intraperitoneally.
3. Eight hours later, normal saline solution, 100 cc. by hypodermoclysis.
4. Continuous Murphy drip, 30 drops per minute. 5% glucose, 2% soda bicarbonate in normal saline. If not well retained, to be discontinued.

5. Caffein-sodium-benzoate grs. ½ by hypo every four hours.

6. Camphor in oil grs. 1 or Adrenalin Hydrochloride (1-1000 solution) 3 min. if necessary for shock.

Next day the vomiting had ceased and the diarrhea was checked. The temp. however, remained high, about 103°-104° rectal. I decided to begin feeding that night since the starvation period had been a little over 24 hours. Breast milk was given, ½ oz. every three hours. This dose was increased by 1 dram at each feeding. The child seemed brighter, and the saline and glucose infusions were stopped. The temperature was apparently coming down. On the fourth day, all was going well, when late in the afternoon the temperature shot up, and the child developed signs of shock. I examined the ears, but both drums were clear. The saline and glucose infusions were then resumed, and 3 min. of Adrenalin Hydrochloride (1-1000 solution) were given by hypo q 4 hours in place of the Caffein-sodium-benzoate. After a few days, stimulation was gradually discontinued, as the child seemed brighter, but the infusions were given twice in 24 hours, one intraperitoneally, and the other subcutaneously. Weight had become stationary and the temperature was falling. On the ninth day the temperature again shot up, the child vomited and was very drowsy. One ear drum was bulging. Paracentesis was performed and the temperature dropped. The temperature again rose, the next day, but dropped shortly after the other ear drum was incised. From this point on, the breast milk was gradually increased, and the feeding interval was lengthened also. His weight now was 3.650 kilo. having lost 880 grams in 13 days. About the 21st day the temperature began to rise and fall each day. The ears were draining and there were no signs of mastoiditis. The urine however, showed pus with clumping. Sodium Citrate grs. 5 was then given every 3 hours. The baby was taking the breast milk well, and was slowly gaining in weight when on the 29th day, it developed pemphigus. The child was then isolated, and the prognosis looked exceedingly grave. His weight was 3.670 kilo. at that time.

Just about this time Dr. Marriott gave a paper before the Detroit Pediatric Society, and in his paper he stated that he was giving as high as 10% carbonydrates to his athreptic infants. Here was a case of intestinal decomposition resulting from alimentary intoxication and parenteral infection. The baby was then taking 3 oz. of breast milk q 3 hours-8 feedings, so I replaced the soda water which I was giving by mouth with a 5% glucose solution—1 to 3 oz. between feedings, and had the urine examined daily for sugar, but none appeared. The baby took this eagerly so then I increased the breast milk and the feeding intervals to 3½ hours. At this point I began giving Kepler's malt and cod liver oil drams ½-T. I. D. and orange juice once daily, beginning with one dram and increasing the dose twice a week.

The child recovered from the Pemphigus and returned to the ward after 20 days of isolation, weighing 4.050 kilo. He was getting 4½ oz. breast milk q 3½ hours-6 feedings. He was then gradually taken off the breast milk and put on a mixture of a half cow's milk and 5% Dextri-maltose. From this point on he began to gain from 1 to 2 oz. daily and had a ravenous appetite. About the 65th day he was put on fruit sauces, broth and Zwieback. The bottle feeding was two-thirds milk with 1% oatmeal water as a dilutent, with addition of Dertri-maltose and dri-malt soup extract with wheat flour to make a 5% addition of carbohydrates. The glucose solution by mouth was discontinued. The baby was finally discharged on the 84th day, weighing 5.465 kilo.

He was getting a full diet at that time of fruit sauce, orange juice, vegetables, broth, Zwieback and graham crackers. His formula was 2/3 milk with a 5% mixture of Dextri-maltose and dri-malt soup extract with wheat flour. He was also getting the malt and cod liver oil drams ½ T. I. D.

Case Report 2.—Baby J. W. M., age 2½ months. Male.

Present illness began 2 days before entrance into Grace Hospital with severe diarrhea, 10 to 12 stools a day. Some vomiting, fever, drowsiness.

Physical Examination—Pulse rate 130, sharp and snappy. Respirations increased and of the air hunger type. Dehydrated, skin dry with slight grayish tinge. Anterior fontanelle and eyes sunken in. Eyes fairly clear, although rolled upwards at times. Pupils react well to light and accomodation. Ears negative. Heart and lungs negative. Abdomen distended.

Past History—The child was taken from the breast at 3 weeks, because the mother developed puerperal insanity. Various formulae were given but nothing seemed to agree with it. The condition of the child gradually lapsed from a state of acute indigestion into an intestinal decomposition. He had not gained any weight since birth, was constipated, had had a large abscess on chin during past month and was anemic.

The treatment in this case was very similar to that of J. M., except it was only necessary to continue the saline and glucose by hypodermoclysis and intraperitoneally for two days. The choice of food here was skimmed milk (boiled 10 minutes) and buttermilk. This was worked up gradually into ½ milk and 5% Dextri-maltose. The buttermilk was stopped and tablets of bacillus bulgaricus (H. W. D.) were given before the feedings. His weight was 3.345 kilo. (lowest weight) 11 days after entrance to hospital when he weighed 3.670 kilo. His gain in weight was slow, and same to a standstill about the 24th day. Examination of the blood showed a hemoglobin of 68% sahli. He was then given iron citrate grs. 3-4 by hypo twice a week, and malt and cod liver oil, drams ½ T. I. D. After six injections of iron citrate his hemoglobin was 75% sahli. His appetite had increased and his gain in weight was from 1 to 2 oz. daily.

FEEDING OF INFANTS AND CHILDREN

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During the past few years laboratory studies have added much to our knowledge of nutrition.

These studies have altered many of the conceptions which have been previously considered as fundamental and have placed certain empirical proceedures on a rational basis. Nearly every aspect of the nutritional problem has been attack. It involves an entire restatement of the requirements both as relates to quantity and quality of food intake.

The general statement of Rubner & Heubner that 100 calories per kilo in 24 hours were sufficient during the first 6 months of life must be revised since it has been shown that a very active infant needs more while a quiet one needs less; in the premature infant Talbot has shown that 175 cal per kilo must be fed before establishing a satisfactory gain in weight; Marriott has divised diets for infants suffering from malnutrition in which as high as 200 cal per kilo can be advantageously ingested.

The varieties mentioned for the infant holds equally well for children. The periods of growth between the ages of two and fifteen were until recently shrouded in mystery. The infant and adult had been fairly well studied. In the absence of definite data it was assumed that there was a gradual lessening need from infancy (100 calories per kilo) to the adult (50 calories per kilo). This assumption was entirely fallacious. Through the work of DuBois our knowledge has been greatly increased. In the light of the facts elicited our conception of physiological needs of growing children has been altered so that their larger appetites no longer should be considered as abnormal, but only the response of physiological demands and Oliver Twists demand for "more" is now fully justified. Indeed between the ages of 12 and 18, girls should eat more than their mothers, and between the ages of 14 and 18 boys eat more than their fathers. This is greatly increased demand is due largely to the changing factor of activity which gradually increases during the life of the child and makes up about 40% of the requirements during the period of adolescence.

The factor of growth while very large in infancy; viz 45%, gradually diminishes to about 9%, just before puberty, when it rises to about 13%, according to Dr. Holt. These two factors, growth and activity together, make up the bulk of this greater demand in later childhood.

Turning out attention to the quality of the food ingested. It is in this particular field that much knowledge has been gained. In the earlier statements we were told that for the maintenance of life, certain irreducible minimums were required in protein, fat and carbohydrate, later the importance of mineral salts was stressed, but today our conceptions have been broadened and in respect to protein, we want to know its source, whether animal or vegetable. We want to know its constituent amino acids to determine whether it is capable of building animal tissue. We want to know its "buffer value" since it relates to the absorption of the hydrochloric acid of the gastric juice and we further require to know whether it acts as a sensitizing agent in the production of asthma or eczema. As a general rule 15% of the caloric intake should be in protein. While this much is not actually utilized, yet because of the varying amounts of amino acid in foods, it is necessary to feed in excess that a proper selection may be made.

The fats too are held up for careful scrutiny. We require that at least a portion of the intake shall be glandular fat, (butter fat) as distinguished from stored or non-glandular fat as lard. We must have a certain quantity of animal fat since vegetable fats such as cottonseed oil as found in many butter substitutes are not a carrier of the fat soluble vitamin necessary for growth. Not only the quality of the fats are considered, but the quantity is even more important for we find that in metabolism of fats there are many pitfalls; that unless ample carbohydrate be present in the diet, the oxidation of the fat does not take place completely and Ketosis (acidosis) takes place. Dr. Schloss estimates that one gram of carbohydrate is needed to insure complete oxidation of two and one-half grams of fat and thus protect the infant from Ketosis (acidosis). A child, however, who has developed this condition, needs a much larger intake of carbohydrate, preferably in the form of glucose, as a rule given intravenously.

The empiricism of years has at last found its justification in the use of cod liver oil as an actual dietary product. No longer should it be considered as simply a medicine to cure a disease, but it is the inalienable right of every infant to receive as a part of its diet small portions of this highly charged vitamin A carrier. Two percent of the diet weight of fat in the form of cod liver oil is equal in its protective power to 30% of butter fat. Not only is it rich in vitamin A, but it exerts an unexplained influence on the laying down of calcium and phosphorus in the bones of infants and children suffering from rickets.

I cannot close this brief discussion of the fats without sounding a word of warning concerning the dangers of over-feeding with fats. The properly balanced diet should contain from 25 to 30% of its calories in fat. One should constantly bear in mind the high calory value of a gram of fat, (9.31), considerably over twice as much as either carbohydrate or protein and when whole milk is fed or top milk mixture used, the fat portion quickly passes its optimum and trouble ensues. Whole milk has 51% of its calories in fat and in order to give a balanced ration containing 25% of its calories in fat, one must provide an ample carbohydrate offset, but this cannot be done if too much milk is consumed as the appetite is satisfied with its

milk intake and it is difficult to feed a sufficient quantity of other foods to balance the ration. In children above two years of age, I believe the butter fat portion of the diet can well be supplied by the use of one pint of whole milk, and if more milk is consumed, it should be partially skimmed in order not to over-feed with butter fat.

We have next to consider the carbohydrates (sugars, dextrins and starch). In children this is represented by sugars cereals, vegetables and fruits. It is not many years ago that textbook on Pediatrics recommended that starches be not introduced into the diet until after the first year. Through the combination of sugars and dextrins we are able to begin intensive carbohydrate feeding as early as the second month and introduce cereals and vegetables in the sixth month. Through this early carbohydrate feeding we are better able to supply the optimum balanced ration particularly during the second six months of life. The carbohydrate portion of the infant and child's diet should approximate between 50% and 65% of its caloric intake, but care should be taken that these carbohydrates be properly chosen. White bread and potato, the two most commonly used forms of carbohydrate, are not the ones of choice, both of these being low in vitamin content. The cereals of choice are those made from the whole grain and the vegetables of choice are those in which the leaf or stalk is used. In addition to these fresh or stewed fruits, are introduced early in the second six months of life. Orange juice should be begun as early as the second month, if infant is artificially fed and at six month is breast fed. Orange juice is the carrier of the highest potency of vitamin C yet known, and every infant and child well or sick is protected from scurvy by its use. One and one-half cubic centimeters of orange juice contains as much vitamin C as one pint of milk. The leaf of cabbage carries a high proportion of vitamin C and some method should be divised for making use of this vegetable for infants and children. It is strange that we so often say, give all vegetables but cabbage. Another very cheap protector against scurvy is tomato juice. I personally have had but little experience with it, but Alfred Hess has used it extensively in institutions, with good results. The infants and child's diet in the times past has been entirely too restricted, but in broadening it, care should be taken to choose satisfactory articles of proven value. Passing to the fourth factor in a well-balanced diet we must deal with the mineral salts. Perhaps the most startling findings have been in the study of calcium and phosphorus and a ratio has been established for these two elements in relation to food intake. In order to keep the blood serum supplied with the optimum amount of calcium, i. e., so that there shall be above 10 milligram of calcium for each 100 cc. of serum, there should be a daily intake of at least 640 milligrams of calcium for each 100 grams of ration and 493 milligrams of phosphorus for each 100 grams of ration ingested in order that there may be sufficient phosphorus to keep above 4 mg. phosphorus in each 100 cc. of blood serum. With this intake the ratio of calcium to phosphorus will be such that rickets will not be likely to develop since Howland has shown that if either of these fall below a point so that the product of their milligram content in 100 cc. of serum is less than 30, the condition of rickets is sure to follow. I have referred to the condition of Ketosis in which the alkali reserve is greatly altered. For years we believed that the giving of bicarbonate of soda intravenously and by mouth was the correct proceedure. As already mentioned the proper proceedure is to use glucose solution intravenously by rectum and mouth.

Seasonal variations of food stuffs requires us to vary our diets accordingly.

It has been found that in the winter months cow's milk contains one-third less vitamin A than during the summer months. It is therefore necessary that during winter we supplement cow's milk with yolk of egg or preferably cod liver oil. Summer months with the longer hours of sunshine, has been found to be the time when rickets is less likely to develop. This is explained by the recent finding that sunshine has the power of affecting favorably the deposition of calcium and phosphorus in the bony structures. Seasonal variations therefore, have direct influence on the utilization of food stuffs.

To summarize:

We are at present in an era of active study and observation resulting in many new and interesting conceptions. We should hold ourselves in readiness to correlate the laboratory findings with our clinical practice.

DISCUSSION

DR. J. C. MONTGOMERY, Detroit: As Dr. Cowie has said, one cannot take a dogmatic attitude towards any feeding method, and it is rather a difficult subject to discuss.

The caloric requirement varies a great deal (and Dr. Hoobler also brought out this point), because of activity and various other factors. I think it is interesting that, having become accustomed to feeding by weight, we now see the attempt to feed by other standards. Pirquet is feeding by size and Maniott by the weight a child should have at his age. It is a different way of getting at the same thing—feeding more by size than by weight. That in a sense is logical because fat is the less active tissue from the metabolic standpoint.

As regards the frequent intervals: As stated, we cannot be dogmatic, and I think we all see cases at times doing not so well on more frequent intervals and which do better on longer ones.

Dr. Hoobler's remark as to recent studies along the lines of nutrition having forced us to make a re-statement of many of our ideas in regard to these things is very true, and it causes me to wonder if we would not perhaps keep the pathological physiology of some of these conditions thoroughly in mind if we spoke of conditions of dehydration and acidosis rather than of intestinal intoxication. I think Finkelstein performed a great service in calling the attention of the profession to intestinal intoxication and clearly pointing out its symptomatology. Now, however, we can quite thoroughly explain those symptoms along the lines of dehydration and acidosis, and I believe we can avoid mental confusion by using these terms rather than that of intestinal intoxication.

DR. D. J. LEVY, Detroit: In regard to the high caloric requirement of the child, this has been dealt with in the recent literature as a somewhat new phase of infant feeding. The principle underlying the so-called high calory feeding was definitely laid down by Finkelstein a number of years ago and was emphasized in a paper by myself in 1912. Finkelstein says to feed the child according to what he should weigh, and states that the average child weighs 3 kilograms at birth, 4 kilograms at two months, 5 kilograms at four months, and doubles its birth weight at six months. This is taken simply as a standard. Also, following the idea of Finkelstein, he says that the child for the first three months should receive 100 calories per kilogram of weight, for the second three months should receive 90, for the third quarter 80, and for the fourth quarter 70 calories per kilogram of body weight. That determines the child's requirements. That is not high calories feeding in the case of the normal child, but if the child at the age of six months weighs only half what it should weigh, then when one gives 180 calories per kilogram of weight, he is merely feeding it on the conventional principle of 90 calories per kilogram of what it should weigh. So there isn't anything different about that. The figures I have given appear in the literature and are easily available. So the principle of high calories feeding is not anything new, and it is not inconsistent with the principles we apply in our caloric feeding every day.

I am very glad that Dr. Hoobler saw fit to bring into the discussion the feeding of the child beyond the age of infancy; that is, the child in the second year of life. It is a phase of child feeding which we have neglected in a measure and one of the most important things with which we as pediatricians have to deal.

To my mind the most important principle in the feeding of a child in the second year is to give it less milk and more of other things. The underlying theory of this has been gone into. Going farther than Dr. Hoobler indicated, I would say that the child beyond the age of a year should receive a maximum of a pint and one-half of milk in 24 hours, including 10 oz. for breakfast and 10 oz. for supper. If the child receives a larger quantity of milk than that the tendency is towards constipation. That constipation means the elimination in the stool of calcium and magnesium. The lime that should be deposited in the bony structure is lost in the stool, rickets results, and we have in addition an anemic child instead of one who, had he received small milk feedings and large quantities relatively of fruits, vegetables, broths and cereals, would have presented a different nutritional picture. We will see a smaller number of cases of acidosis in our older children if we give them less milk in the second year and more granulated sugar over their cereals and cooked fruits. There is no necessity of depriving the older children of pure sugar candy. Those things are of definite prophylactic benefit which I do not believe can be over-estimated.

I want to ask Dr. Greenthal a question. In a number of infants who have had a large amount of gastric fermentation I have given minute doses of dilute hydrochloric acid, and these children have been benefited as far as gastric fermentation is concerned, and also there has been in most instances improved well being as far as nutrition is concerned. I wonder if Dr. Greenthal has ever used hydrochloric acid as well as lactic acid in the pasteurized milk he has described.

In regard to Dr. May's paper, he has described the condition of alimentary intoxication and not the condition of ordinary diarrheas of children in summer. In the ordinary diarrheas of children the treatment he has outlined is absolutely contraindicated, in the one particular of the hunger period. Summer diarrhea should not be classed as a condition of alimentary intoxication. The treatment indicated in alimentary intoxication is unnecessary in the average summer diarrheas and is distinctly harmful as to the starvation imposed in infants that have alimentary decomposition. I want to emphasize the point that while the treatment outlined by Dr. May is indicated and is the correct method of treating such cases as he has described, it is not the treatment for summer diarrheas in general and should not be so held.

DR. HARVEY, Pontiac: Dr. Levy is the only man who has spoken of examination of the stools in cases of intestinal intoxication. I do not see how one could make a diagnosis of intestinal intoxication and indicate the proper treatment, without stool examination. No examination of an infant is complete without stool and urine examination.

In connection with Dr. May's paper, I have had many cases of adenoids in children. Some children when they get a bad cold or infected adenoids have diarrheas, and as soon as the adenoids are taken out they are less susceptible to diarrhea, when by proper diet you are able to bring about an improvement in the general condition.

Dr. May's paper consists of case reports of two children. The first child had an otitis media. I wonder how you are going to get at the feeding of infants without stool examinations. The same thing is true of older children, and I do not think the doctors are in the habit of making such examination.

DR. GIFFEN, TOLEDO, O.: I feel that a great many of our feeding problems in difficult cases are due to causes outside of the intestinal tract altogether. In my own experience I have often found that I could not make the baby do well until I had located some focus of infection outside of the intestinal tract. In some babies it is pyelitis, in other babies it is a middle ear trouble, in other infants adenoids or sinus infection.

In my service at Panama during the war we had a great many Negro babies brought in who, in spite of everything that could be done, would die, and they were all autopsied. We happened to have there a pathologist who was a real scientist and much interested in his work, and he went to the trouble of making complete dissection of the middle ear in all these infants. I do not remember just how many there had been when I left, but there were somewhat more than 100 cases, and he found pus in the middle ear in over 90 per cent of those babies, and in the mastoid cells themselves in many babies dying with no symptoms that were referable to the ear. I had the ear specialist make the rounds with me and he would pick out about half of these babies before they died. There was no typical sign of infection behind those drums. The otologist could make a correct guess in about half of them, open them and they would get well. Since my return I took this ear specialist out to the hospital, for I had a few babies not doing well, and in two cases he opened the ear and then the patients began to do well right away. That is a thing I think we should look for.

In regard to lactic acid milk, we use it a great deal under the old method, with considerable success in a great many cases. But there is one thing I am not quite clear about in this connection, and that is this: As I remember, Dr. Greenthal claims that he was able to feed a higher carbohydrate diet in the form of corn syrups because of the action of the B. bulgaricus on that sugar. If I understand him correctly, what has been his experience at Ann Arbor with lactic acid?

DR. C. H. EISMAN, Detroit: May I ask Dr. Cowie why he limits the amount of sugar to one ounce? Does he determine that empirically, or is there some indication for the amount of lactic acid at feeding time?

DR. HOOBLER: I would like to ask why Dr. Cowie does not use some starch cereals in his formula?

DR. E. E. MILLER, Flint: We have been told the different milks to use and now we want to know when to use them. We get carbohydrate indigestions, diarrhea, fermentation, and around the rectum of the baby you will always find an irritation. There is too much sugar-forming acid. We find in those cases that the baby is getting too much sugar. When you have a proteid indigestion there will be a putrefactive odor from the proteid, but you will not find the soreness that is developed from too much carbohydrate food.

Our method is to use arrow-root when we have this infection, then you can add more carbohydrates. It is always wise to begin with low carbohydrates. Probably a better way is to begin with proteids. I have been using proteids for a week, then if at that time there is a putrefactive odor we begin to add the carbohydrates, otherwise diarrhea develops. Here is a little point I picked up once, and in talking with a man from Brazil, he said it was used extensively there; and that is to use hexamethylenamin and sodium benzoate in these intestinal intoxications. So I used it in the south when living there and found it to be a very good thing. If you do not use plenty of sodium benzoate you get a serious irritation of the bladder. For that reason it is well to use about four to one.

DR. COWIE: So far as my paper is concerned I tried to make it clear that I was simply showing a simple method that could be used by the general practitioner for the feeding of normal infants, not for the feeding of pathological infants, in an attempt to prevent the development of pathology.

The idea of feeding for weight is almost as old as the idea of feeding an infant for its age. I do not think that Dr. May felt he was advancing a new idea when he made that statement. What we should do is to try to develop the baby to its best weight—the weight he should have for his age, we might say. The standard of weight for infants is pretty well established. The difficulty we are having at the present time in the measurements for weight, the standard height, etc., applies particularly to the older children. So I agree with those who have said that we should attempt to bring our babies up to their normal weight. A child that is under-weight should be guardedly pushed as far as he can tolerate food, with food that will make him develop for his weight. We may very frequently find that an under-weight child, as was pointed out years ago, has to be fed very much more food than the child of normal weight.

Dr. Hoobler spoke of cutting out sugar during the second year, and Dr. Levy also spoke of that. I would like to add my approval of that method wherein, in the second year, out goes the sugar and milk, getting the milk out as quickly as possible. That is, we want to get a food containing iron principally. Milk contains no iron. The child that is fed large amounts of milk up to 16 years of age hasn't any "pep." It is a food nature did not intend him to have at that age. He should be gotten away from that very much earlier. In the second year we should cut the milk down to a pint a day. My advice is always to try and get the baby to eat cereals, vegetables, etc., and then give milk purely as a supplementary food.

Dr. Harvey spoke on the subject of stool examinations. We will I think all admit that this is a very important matter. The differentiation of different kinds of stools you are, I believe, all familiar with, and it as well as urinalysis forms a part of the examination of a child. Examination of the urine is frequently overlooked, but it is very important.

Dr. Eiseman asked why we limit the sugar to one ounce. We do not consider this amount low, but that on the contrary it is enough sugar to burn the fat and to carry on all the metabolism. And I think it is a fairly well established idea at the present time that between 5 and 7 per cent of sugar, if the child is doing well, is about the proper amount. We simply want enough sugar to burn the fat and add calories for storing away body tissue.

Dr. Hoobler asked why we do not feed starch up to the twelfth month. We do, we begin at the eighth month. As stated in my paper, at eight months it is a matter of rule. When we feed vegetables and cereals I feel that the eighth month is early enough to begin with. One reason for doing this is that I believe it is better for an infant before he has been sensitized to the various food substances during the early months of infancy than during the later months. The other idea is that we believe the child is endowed with sufficient iron in his system to last for perhaps eight or nine months, and knowing that mother's milk or cow's milk carries no iron. It is the vegetables and fruits that carry iron. Consequently we choose these and add cereals at the same time.

I have simply wished to show how a child could be fed on milk, sugar and water clear to the end of the first year if he did not have anything else, but that he would in that case lack the value coming from carbohydrates and the proper amount of saccharin.

DR. GREENTHAL: In reading over Dr. Abt's book on baby foods, I happened to notice that there is in it a formula for hydrochloric acid milk. If the abnormal fermentation were due to lack of bacterial inhibition, the addition of hydrochloric acid would be a very effective way of checking this abnormal fermentation.

At one time I had the idea that a very good milk for malnourished infants would be produced by adding enough orange juice to the food to precipitate the case in making it so full of vitamins that the baby could not help but grow rapidly. I soon found that this was not a success, because the babies refused to take it. I then tried lactic acid. Another way of attacking the same problem is by the giving of boiled buttermilk as used in Holland, which has been frequently employed. As the buttermilk is boiled of course all the beneficial effects of the lactic acid bacilli are lost.

I want to speak of a point in Dr. May's paper as to the use of glucose intraperitoneally. Glucose used in this way is frequently attended with marked abdominal distention which prevents the giving of more fluid. This distention is not harmful and disappears in a short time. I believe the explanation is that impure glucose develops acids on heating, and the concentration of this glucose solution is far too acid to be introduced into the peritoneal cavity. If we use the C. P. glucose, which, however, is much more expensive, the production of acids will be done away with.

DR. HOOBLER: I am glad that the problem of the quantity of milk to be given after the age of six months was considered by Dr. Levy. That is perhaps better than two years. I believe the practice in home feeding is largely to push the feeding of milk. Therefore when our schools are giving a pint of milk a day and then the

child comes home and gets a pint or more a day, he is getting a quart or more, one pint of which is furnished at the school and the balance at home, just because of the idea of the value of milk in childhood. Now Dr. Levy, Dr. Cowie, and a large number of other pediatrists, have found that this practice has been carried too far. At the same time we must be careful not to let the pendulum swing too far the other way.

I believe Dr. Levy said that 20 to 24 ounces of milk should be given at the age of six months, and then up to 30 until about a year old. I mentioned in my paper that there should be a pint, and if more is given it should be skimmed in order to take away what I believe to be the most damaging factor of too large quantities of milk—too much butter-fat. I think we should go out and try to offset some of the propaganda being published by Woods Hutchinson and a number of other writers in the magazines of the day, and of the creameries which are pushing the sale of their "safe milk," throughout the whole state. I think there is a principle of right and justice in a reasonable amount of milk. Rather than to say a quart of milk a day, let us say a pint of milk for every child. That would be a better slogan than a quart of milk a day. I believe that right now is a critical time for us to work, particularly in the summer months when fat feeding is not handled as well as in colder weather.

Dr. Harvey brought up the question of stool examination. I do not believe we practice that nearly as much as they do in Boston. Perhaps we are not as careful in our laboratory technic. Duebber of Boston wrote an article in which he gave us many descriptions and pictures of stools. My own feeling about it is this: That a man who has at one time analyzed many of these stools in the laboratory can very frequently obtain by a careful visual study of the stool and its characteristics, as appearance, color, etc., as well as by noting its odor, a fairly good representation of what the stool is. It is true one cannot determine whether there is free or neutral fat in it, but he usually can tell whether it is a lactic acid stool or whether an acetic acid stool. But I think the average doctor does not practice that to the extent Dr. Morse does. Now Dr. Morse and Talbot and a number of other eastern men routinely make stool examinations and perhaps build up a reliance on them. But I think the consensus of opinion in the middle west is that the taking into account all the features that may be found by the five senses helps us greatly in stool analyses.

DR. MAY: First, in regard to stool examinations. In the cases I have reported no chemical examination of the stools was made, but each day macroscopical examination of the stools was made and their character determined.

In regard to urinalysis, there is more than one test of the urine. In the cases I have reported the urine was examined twice a week. The urine was examined the day the patient came in, but at that time showed little pus.

In regard to the diarrheas that follow infections, I know that to be true, but I feel, too, that in these cases the parenchymal infection here had something to do with the alimentary intoxication. When I saw the baby first the ear drums were absolutely negative, they were just as clear as any normal drum.

One point I wanted to bring out, Dr. Hoobler spoke of in his discussion—the giving of too much milk. A case in point: Not long ago I had as a patient a girl about 7 or 8 years of age. The history was that on making examination of this child at the school those in authority said that she was too tall for her weight. So they began feeding her during the morning and afternoon sessions with milk and crackers. It got to the point where, when she came home at noon she would not eat anything and the same in the evening. I had them put a stop to that, and she began eating heartily at her noon and evening meals. Thereafter she received no milk in school.

THE CAUSATIVE FACTOR OF VESSEL COMPRESSION IN UPPER URINARY OBSTRUCTION

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Although most of the older anatomists have described most carefully, the many variations in the vascular supply of the kidney, together with the relations of the vessels to the ureter, and although the accessory arteries and veins so frequently met with in their contiguity to the latter, have for many years held interest for the dissector, it is but comparatively recently that the clinical application of this relativity of regular or irregular structures has received much comment; nor until quite recently has there been such perfection in urological diagnosis and surgical treatment of the pathological conditions caused directly or indirectly therefrom, as to enable one to draw conclusions as to the actual role of these vessels in the production of same.

During the past three years the writer has observed in the dissecting room a considerable number of anomalies in the vascular supply of the kidneys, associated with which in several cases were signs of infection or obstruction to urinary outflow or a combination of both of these conditions. Only relations of normal or aberrant vessels which might be implicated in the etiology of obstruction will be discussed in this communication; namely, those vessels which cross the ureter or pelvis of the kidney, without consideration of upper polar arteries or veins.

Three cases of hydronephrosis, each being associated with obstructing branches, will be described herein, there being nothing unusual about the type of obstruction or about the artery involved, excepting the rather high incidence of hydronephrosis with blood vessel obstruction in routine dissection room observations.

In the majority of normal cases the renal arteries were seen to have their origin from the abdominal aorta at two opposing points, opposite the first lumbar interspace, and leading to the kidneys at nearly right angles; the right often being at a somewhat lower level, and a little longer; crossing the postcava dorsally. Each would usually divide into three or four large branches and, just medial to the hilum, penetrate the substance of the kidney. There was no rule as to their relations to the veins,

but in almost every instance the arterial branches were for the greater part posterior to the veins. The renal veins themselves, were found lying for the most part anterior to the arteries on their way to the venacava, the left receiving the left spermatic at nearly a right angle. The important vessels crossing the ureter normally are the spermatic or ovarian just below its middle, anteriorly; the common iliac dorsally, just as it is about to enter the true pelvis, and in the female, the uterine, posteriorly, as it traverses the broad ligament to reach the bladder, penetrating the uterine plexus of veins. The right ureter is often adjacent to the venacava laterally; the left with the inferior mesenteric vessels posteriorly. The irregular arteries which we shall consider, were aortic branches and anomalistic stems from the renals themselves, either going to the lower pole or entering the kidney substance at its hilum, although a greater number of aberrant branches were observed going to the upper pole of the kidney, but are not described here because of their unlikelihood of producing obstructive disturbances. The vessels in this class are usually given off by the renals, aorta or phrenic. More unusual anomalous lower polar branches are reported to have been given off by the inferior mesenteric, the common, and external iliacs; we have not met with these later branches.

Case 1.—Hydronephrotic kidney (right). Aortic branch leaving at a level of the spermatics, and leading to the lower pole, to enter same at its anterior aspect, crossing the ureter dorsally and angulating same at a point a short distance below its pelvic junction. Kidney location normal; capacity of sac, about 60 cc. No other obstruction noted.

Case 2.—Large renal branch entering the lower pole. Left hydronephrosis, of about 50 cc. capacity. The obstructing vessel crossing the ureter anteriorly. Considerable degree of ptosis, a rather long pedicle, and a somewhat anterior displacement of the upper pole, forming a kink in the ureter at the pelvic junction. No other obstruction noted.

Case 3.—Left hydronephrosis, with sac of about 50 cc. capacity. Low aortic branch crossing ureter anteriorly, with anterior rotation of the upper pole, and entrance to renal tissue at pelvis. There appears to be a valve-like formation at the uretero-pelvic juncture.

There are three heads under which any of the factors of compression of the ureter may be placed. Namely: primary, secondary, or both primary and secondary. Thus, there may be an actual compression as in case No. 1, with a resulting obstruction, or there might be a ptosis, with the ureter kinked over a branch with a rotation of one or the other pole of the kidney, as seen in the two other cases. Again one might see a double role on the part of the vessel, which originally, by continuous pressure, or by intermittent pulsation at a strategic point, as at the narrow uretero-pelvic juncture would be capable of producing a moderate degree of obstruction; later, by a ptosis or rotation of the organ, an additional degree of angulation obtaining and from the added inhibition of proper drainage, greater chance for occurence of, and aggravation of renal infections from hematogenous or lymphogenous sources. In turn, with the added weight of an already congested or beginning dilated kidney, there would be a proportionate increase in a tugging on the compressing vessel, with the vicious circle established.

When one considers the development of the permanent kidney in the mesoderm, its nephrotomes, its segmented lobulated, and finally its fused appearance, its many branches from the aorta, it is not surprising that one should encounter many varied numbers and forms of irregular branches. When one also remembers the migration of the kidney from its early caudal location to its final well protected resting place, through segments, any of which may give it an independent artery, it will be seen that the branches might come from any of the segments through which the organ passes in its ascent. Then, too, the anomalies of location will be seen to have been affected by the source of blood supply. Thus, one case was found where the renals were both given off at a point considerably lower than normal, the source of blood supply determining the location of the organ. Such a case might have been easily diagnosed improperly as one of ptosis. In another instance where there were two anomalous aortic branches, one to each pole, it was interesting to note that evidence of lobulation still existed to a considerable degree.

The mechanism of ureteral obstruction by blood vessels has for the past decade received considerable speculative comment, both in this country and abroad, previous to which, occasional cases of hydronephrosis associated with anomalous vessels passing over the ureter or uretero-pelvic junction were reported; many of the older pathologists denying the factor of such vessels in the production of such; others from time to time claiming either primary or secondary causative effects. Occasional cases were reported from time to time with but little comment made as to the causative element of the associated vessels, and few cases having been treated by division of the offending band for relief of the existing hydronephrosis.

In 1894, Pitt(1) presented five specimens and commented upon the role of anomalistic branches in the production of hydronephrosis, two of which were later described by Morris (2) who regarded them as rare specimens, ascribing 90 per cent of hydronephroses to malig-

nancy of the pelvic viscera in his series of 381 cases examined. Somewhat later, Keyes(3) made the statement that pressure from without by an aberrant vessel as a factor in ureteral obstruction is common, but that from pelvic growths, uncommon. He describes a case of obstruction from a spurious branch of the renal vein, producing a marked hydronephrosis. How little this important factor has been considered as a cause of obstructive conditions of the kidney, may be well seen in reviewing sections of the leading works in urology, which treat the question of etiology of hydronephrosis, pyelitis, pyonephrosis and other infections of the upper urinary tract. Many refer to it as a rare condition. Lengueu(4) in 1904 stated his skepticism as to the probability of blood vessels being the cause of a hydronephrosis. Unless the ureter shows an indentation at the point of crossing with dilation above the vessel and unless no other obstructing cause can be found, he does not countenance such as an etiological factor in the production of hydronephrosis. He cites two cases of his own treated by ligation successfully, and one in which an aberrant artery had made such definite pressure upon the uretero-pelvic junction, that he did not depend upon ligation alone for a cure, but removed the kidney at once. He cites a case of Hartman's and one of Picque's, both of which were similar to his and had been dealt with in like manner with equally gratifying results. He is of the opinion that the division must produce a relief of the condition if such a vessel is to be blamed for same.

Conreich(5) believes that compression from this cause will not occur if a vessel destined to supply the anterior portion of the renal substance passes in front of the ureter, or if one going to the posterior aspect crosses behind it. Ekehorn(6) reported a case in which his patient's condition was relieved following ligation and division of an obstructing artery, and at that time was able to collect twenty-four cases from the literature, in which impeding vessels were the etiological factor in the existing hydronephroses. He pointed out the fact that if a vessel crosses the ureter on its ventral side on its way to supply the dorsal portion of the renal tissue, or vice versa, compression might easily follow.

In 1909, Mayo, Braasch and McCarthy(7) reported the largest single series of hydronephrosis cases, in which the cause was ascribed to blood vessel obstruction. They were of the opinion that out of their series of twenty-seven cases, twenty were directly attributable to the above. It is interesting to note that these observers report a great many lower polar arteries passing in front of, as well as those with a posterior relation to the ureter, as impedimental to urinary outflow. They express their judgment that a good many operations have been performed for similar conditions, in which no cognizance had been taken of the role of compressure played by these vessels. They relieved the condition in each instance by ligation and division, together with fixation, and Fenger's operation for enlarging the ureteropelvic junction whenever necessary; although in about fifty per cent of the series, simple ligation and division was all that was required.

Squier(8) states that although cases of this sort do occur, many are imputed to such cause, when the apparent indentation was rather the result than the cause of the dilatation of the ureter; this especially, when a hydronephrosis is associated with abnormal mobility or ptosis. The various views of some of the writers who do mention this important subject in works of urology, are diametrically opposed. Watson and Cunningham(9) state that ligation of a branch of the renal artery itself, results in necrosis of the renal substance, and that ligature and division of such an aberrant, per se, usually results in no improvement of the existing condition. The large number of cases reported by the above mentioned observers as well as the frequent reports of others during the past few years, in which excellent results were obtained by division, would disprove their contentions, although it is not denied that necrosis of that area of renal tissue supplied by the ligated artery does occur. In spite of the loss of a certain amount of kidney tissue, the rapid return to efficient function of the involved organ has in a practical manner demonstrated the usual ability of a portion of the renal tissue to approximate, or to even equal the work of the unaffected fellow.

During the past year several cases were reviewed, notable among which was a series of Rowland's(10), who reports twelve cases of his own, eight of which were previously reported by him(11), in which remarkably good results were obtained following operative treatment, and calls attention to the fact that it is important to look out for abnormal vessels in all operations on the kidney in order that one kinking the ureter might be seen and divided, thus in some cases preventing a second operative interference. He is of the opinion that in a considerable number of cases a plastic operation or anastomosis of the ureteropelvic junction is necessary to overcome the accompanying stricture. In one of his cases a pyonephrosis had already occurred; following the evacuation of pus from which, together with division of the vessels the patient made an uneventful recovery.

Among the more unusual disturbances, and in which the vessel involved was a normal, rather than an aberrant structure, were two cases of hydronephrosis from pressure upon the ureter by the vena cava; the ureter passing behind, instead of in front of that vessel. These were described by Kolisko(11) and Gladstone (12), each of whom reported a post-mortem finding of this interesting and unusual disrelation of structures with resultant inhibition of urinary outflow. This anomaly is believed to have been the result of the failure of the anterior portion of a venous loop which had come to surround the ureter following the kidney's migration cephalad in the embryo to disappear, rather than any maldevelopment of the ureter, itself.

CONCLUSIONS

Abnormal relations of blood vessels are primarily and secondarily involved in the production of obstruction whether they be normal or anamalous veins or arteries. Recent satisfactory results in the radical surgical treatment of such obstructions, by many observers, demonstrate their high incidence in ureter disfunction. Many of our text books might well have included in them a more tangible presentation of the question of vessel obstruction.

610 KRESGE BLDG.

BIBLIOGRAPHY

1—Pitt—Trans. Path. Sec., XLV, 110, 1894.
2—Morris—Surg. Dis. Kidneys and Ureters.
3—Keyes—Dis. G. U. Organs, 1911, Fig. 101, p. 506.
4—Lengueu—Ann. d. Malad. d. Org. G. U., 1904.
5—Conreich—Fol., Urol., 1907, I. 529.
6—Ekehorn—J. Hygiea, Stockholm, Aug. 1907.
7—Mayo, Braasch & McCarthy—Jour. A. M. A., LII, No. 18.
8—Squier—Cabot, Mod. Urol., Vol. I, p. 406.
9—Watson & Cunningham—Surg. Dis. and Inj., G. U. Org.
10—Rowlands—Guy's Hosp. Repts., Vol. 72, No. 3, 1922.
11—Rowlands—Brit. Med. Journ., I, 755, 1917.
12—Kolisko—Anat. Anz., 1909, XXXIV, 520.
13—Gladstone—Jour., Anat & Physiol., 1911, XLV.

ENCEPHALITIS LETHARGICA — A CLINICAL STUDY OF TEN CASES*

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This group of ten cases is taken from our hospital service and probably represents the various types of Encephalitis Lethargica seen in the Central States during the winters of 1920 and of 1921.

The wide variety of clinical pictures presented by this particular disease makes studies of group cases unusually valuable. As a basis of this paper we, therefore, present a word analysis of the included chart which is based on symptoms, the time of their appearance and their duration.

The protean manifestations of this disease are well illustrated by the clinical diagnoses on these patients at the time of admission, i. e., diabetic coma, ptomaine poisoning, pneumonia, appendicitis, methyl alcohol poisoning, fracture of skull and four of encephalitis lethargica.

Etiology: Six of our patients were females and four males. The ages represented were six cases between ten and thirty years af age; one between thirty and forty; and three between fifty and sixty. There was a history of an upper air-tract infection such as tonsilitis, cold, etc. within a month of the onset in half of these patients.

Epidemiology: Seven of the ten cases occurred during the cold months. It is to be noted that in this group there were no two cases within the same family or a history of contact with any known case.

Onset: Sudden and acute illness in four; insiduous in six.

Acute Onset: 1: Sudden coma and glycosuria in Case I.

2: Sudden headache, vomiting and fever together with cerebral symptoms in Cases I, III and IV.

Insiduous Onset: 1: Respiratory tract infection and delayed neurological symptoms in Cases V, VI and X.

2: Neuritic pains with cerebral symptoms appearing later in Cases VII and VIII.

3: Trauma with delay of inflammatory signs until after the first week in Case IX.

COURSE OF DISEASE

Case I.—This man, age 54, was riding in an automobile when taken with an extremely severe headache, soon followed by vomiting, not projectile in type. He complained of blurred vision and within three hours was unconscious. This unconsciousness deepened into coma which lasted three days and from which he could not be aroused. The urine, on the first day, contained 6% sugar; on the second day sugar had disappeared; on the fourth day definite neurological signs were present. Lethargy with periods of excitement delirium ensued. Recovery in one month.

Case II.—A Russian Jewess, age 50, while working was suddenly taken with headache, vomiting and fever. In a few hours she was delirious. The mental condition rapidly progressed to coma from which she could not be aroused. Myoclonus of various muscles appeared and cranial nerve palsy. Death occurred on the fifth day. Autopsy showed both macroscopically and microscopically the usual picture of encephalitis lethargica, i. e., congestion of meningeal and intra-cerebral capillaries; minute, pepper-like haemorrhages scattered throughout the gray matter of the basal nuclei and mid-brain; in section, perivascular infiltration with small round cells, degeneration of nerve cells, proliferation of the mesoblastic cells of the vessel walls.

Case III.—A 14-year-old boy, while carrying his papers, felt suddenly nauseated and vomited. He was confused, but continued his route. His customers noticed that he talked thickly and he was sent home. Slight fever was present and the boy seemed entirely disinterested in what went on around him. He was quite lethargic and cranial nerve pal-

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sies—seventh, third and eleventh—were present; also myoclonus of muscles of arms and of legs, and diplopia. Death occurred unexpectedly on the third day. Autopsy was not permitted.

Case IV.—Young male adult ate his supper in a restaurant and on the way home felt nauseated and vomited. He had such a severe headache that he was unable to sleep because of it. He tried to go to work on the following morning, but everything seemed blurred and he saw double. During the day he became irrational and later, lethargic. Cranial nerve palsies ensued as did myoclonus of arms and of leg muscles.

The disease ran a mild course and the patient seemed to be nearly well, when, on the fourteenth day, a recurrent sudden onset appeared with coma. Death in two days. Autopsy differed from the usual picture only in that all the evidence of fresh oozing of blood appeared in the basal nuclei on one side—apparently the most recent invasion.

Case V.—A woman, 60 years of age, had an acute sore throat with fever and vomiting. Four days later mental confusion, drowsiness, and myoclonus of muscles of arms and of legs appeared. Headache was persistent. She remained lethargic for two weeks when coma appeared. Just before death, which occurred on the nineteenth day, cranial nerve palsies became evident, and choreiform twitchings. Autopsy refused.

Case VI.—Female, age 18, had a cold; duration about two weeks. Felt very tired and weak during this time. Had some blurred vision and transient diplopia. On fourteenth day vomited and had severe pains over both recti muscles and myoclonus of legs and of face muscles. This patient continued in a mild lethargy for about two weeks. Her pulse was very rapid and respirations above thirty. Transient aphonia was also present. Recovery in one month with residuum of myoclonus and some emotionalism.

Case VII.—A young, married woman, eight months pregnant. Had a cold in head and some pain. She complained considerably of neuritic pains in face, arms and both legs. Had marked insomnia but felt sleepy and dull. Mentally she was confused and talked at random. Had myoclonus of muscles of arm, opposite shoulder, and of both legs. Urine and blood nitrogen, normal. Premature labor induced; normal, healthy baby obtained and good recovery of mother.

Case VIII.—Male laborer, age 27, attended a "home-brew party." This celebration was followed by headache, vomiting and general dull feeling. Had considerable neuritic pain in face and limbs. On fourth day became confused and vision was blurred and double. Lethargy became quite marked and persisted for two weeks. Recovery in one month with residuum of neuritic pain over left temporal region.

Case IX.—A little girl, 11 years old, fell from a small stool, striking her head on the floor. She was somewhat dazed and complained of headache and dizziness. On the eighth day complained of severe pains in back and legs. During the night vomited and had convulsions involving hands, legs, face and head. She seemed stuporous and later became irrational. Myoclonus of muscles of arms and of legs appeared; also, neck rigidity and a positive Kernig's with strabismus, unequal pupils and then lethargy. Recovery in one and a half months with a marked psychotic state and precociousness.

Case X.—Female, age 28, five months pregnant. Had a severe headache followed by blurring of vision and diplopia. This persisted for two weeks when she became slightly irrational and lethargic. Mild course with recovery in one month. This patient went on to term and was delivered of a normal, healthy child.

ANALYSIS OF SYMPTOMS

A. GENERAL TOXIC SYMPTOMS:

Fever was present in some degree and at some time in all cases, although rarely above 100 degrees. Usually the onset was accompanied with a low-grade fever which persisted for several days. In the four fatal cases two had terminal temperatures, practically normal, but very rapid pulses and two had terminal temperatures above 106 degrees.

Chill was quite unusual, being recorded in but two cases, both of which had concurrent throat infections.

Headache was severe in type and quite constant and prolonged. It was present in all but one case. Occasionally it was described as very superficial and over the temporal regions.

Vomiting was never of the projectile type and only present during the first three days except in one case. While not a distressing symptom it was present in all but two cases.

B. NERVOUS SYSTEM SYMPTOMS:

Diplopia was complained of by eight patients. In three it was possible to demonstrate paralysis of ocular muscles. In most cases the diplopia was evanescent. This sign appeared fairly early—by the eighth day in all cases.

Pupils were normal throughout in six cases, unequal in four, and failed to react to light in three.

Ocular fundi were examined in all cases. In none was there found any evidence of choked disc or optic neuritis.

Facial Palsies: Lid-droop present in all but one case. It was often but slight and was not necessarily constant. Corner of mouth droop was evident in four patients.

Strabismus was present in two patients.

Pharyngeal Reflex was absent in one case.

Lower Extremity Reflexes: Patellars, present in all, exaggerated in one, and unequal on the two sides in one. Babinski was negative in all as well as clonus.

Kernig was positive in two cases.

Sphincter Involvement: Both rectal and bladder incontinence in four cases.

Involuntary Movements: a: Myoclonus, irregular arythmic contractions of muscles were present in six cases. They were irregularly distributed, involving shoulder, arm, face, leg and abdominal muscles.

b: Choreiform jerkings were evident in two.

c: Fibillary twitchings in two.

MENTAL STATES:

A disinterested, unconcerned, apathetic attitude was present at some time in all cases which were conscious during our observation.

Coma was present in four cases, three of whom died. Lethargy in some degree was present in all cases. The mental state or mental condition varied in the same patient, sometimes even in a day. Marked lethargy might be interspersed with restive delirium, emotional delirium or marked wakefulness. In fact Case VII hardly slept any for ten days, yet was drowsy and tired.

Facial Expression: There was something in the facies of these patients which told one at once that a cerebral condition was present. The facial picture was not the same in all, and no one term, such as Parkinsonian mask, poker face, ironed-out face, or such, described it alone.

The listless, vacant look in the eyes must be included in the picture as well as the smoothed-out facial markings. In fact all factors which go to make up what we call "facial expression" must be considered in this word picture which we are unable to paint faithfully in all details.

Spinal Fluid: This varied considerably as to pressure, cell count and globulin. These variations seemed independent of stage or severity of disease. Nineteen spinal fluids were examined and all but six were crystal-clear. These six were from two patients who have previously been reported.*

The pressure was increased in nine and normal in ten punctures.

The cell counts ranged from four to eleven hundred.

The globulin by Nonne test was positive in seven and negative in ten.

Absence of copper reduction was found in six of eleven fluids so examined. All spinal fluids were Wassermann negative.

Blood Findings: Leucocyte counts were made in seven cases and varied from 6,480 to 17,000, the average being 11,300.

DIAGNOSIS

This must be made by a process of exclusion. Given a patient with onset of headache and vomiting, with symptoms of neuritic pains, involuntary muscle movements, cranial nerve palsies or lethargy, cerebral disease is suggested.

The absence of turbidity and polynuclears in the spinal fluid and a negative Wassermann rule out meningitis except that due to tuberculosis.

Negative eye grounds for choked discs and optic neuritis help in the differentiation from brain tumors.

In the absence of any definite sign or test which is diagnostic of this disease, clinical judgment and experience must play an important part in the make-up of a diagnosis.

In some cases an absolute diagnosis cannot be made without autopsy.

TREATMENT

Forced feeding during the lucid periods was insisted upon. Frequent lumbar punctures in those cases in which this procedure was followed seemed to afford relief. Salicylates, phenacitine, etc., did not seem to relieve the headache. It was curious that protection of the head from the air by skull caps relieved the superficial headache.

Absolute rest in bed was insisted upon until all signs of irritation of the nervous system had disappeared. The actual sequlae are yet quite unknown, but from our experience instability of the nervous system is to be expected.

PROGNOSIS

Coma was a distressing sign and was present in three of the fatal cases. We found it impossible to forecast with any degree of certainty the probable course or outcome of any individual case. Case IX, who seemed to be the most hopeless because of the prolonged period of activity and the wide extent of the involvement, lived; while Case III whose course appeared mild, died on the third day.

DISCUSSION

It was our impression, during our early experience with this disease, that it ran rather a definite course, as follows: Onset, irritative lesion signs, then, lethargy. In fact our first few cases reported here and seen in consultation outside of our hospital service seemed to follow the above course pretty closely. But later we observed cases in which lethargy preceded the palsies and vice versa.

The types of "involuntary muscle movements" are spoken of by some as a basis of classifying this disease and are interpreted as corpus striatum lesions. We are not sure that in many cases these are not the results of edema and swelling rather than of direct involvement.

The non-transmission in utero was of note as was also the benign influence on the pregnant state.

This recent pandemic of Encephalitis Lethargica has placed a responsibility upon the profession for its recognition. And this study aims to present the disease as we saw it clinically in a group of cases. We endeavored to study its etiology by the intracerebral injections into rabbits of brain substance from fatal cases and post-nasal washings from living cases. We were unable to demonstrate any causative organisms.

*Journal of Mich. State Medical Soc., Vol. 20, No. 6, p. 41, June 1921.

ENCEPHALITIS LETHARGICA. TABLE No. I

Case Number	Days of Disease	Fever	Headache	Vomiting	Myoclonus	Cranial Nerv Palsies	Diplopia	Lethargy	Delirium	Coma
I	1-3	+	+	+						+
II	1-3	+	+	+				+	+	+
III	1-3	+	+	+	+*	+	+	+	+	
IV	1-3	+	+	+	+	+	+	+	+	
V	1-3	+	+	+			+			
VI	1-3	+								
VII	1-3	+	+	+						
VIII	1-3	+	+	+						
IX	1-3		+	+						
X	1-3	+	+				+			
I	4-7	+	+			+		+	+	
II	4-7	+	death 5th		+	+		+	+	+
III	death 3rd day									
IV	4-7	+	+		+	+	+	+	+	
V	4-7	+			+			+	+	
VI	4-7	+					+	+		
VII	4-7	+		neuritic pains					+	
VIII	4-7	+	+	neuritic pains			+		+	
IX	4-7	+								
X	4-7	+				+	+	+		
I	8-14		+			+		+		
IV	8-14	+	+		+	+		+		
V	8-14	+			+			+		
VI	8-14	+			+	+	+	+		
VII	8-14			neuritic pains				+	+	
VIII	8-14	+	+		+	+	+	+	+	
IX	8-14	+	+	+	+	+	+		+	
X	8-14		+			+	+	+	+	
I	15-30		+					+		
IV	15-30	+	death 16th		+	+		+		+
V	15-30	+	death 19th		+	+		+		+
VI	15-30	+			+‡	+	+	+		
VII	15-30				+		+	+		
VIII	15-30		+					+		
IX	15-30	+	+		+	+	+	+	+	
X	15-30		+			+		+		

*Death third day. ‡Abdomen rigid.

ENCEPHALITIS LETHARGICA. TABLE No. II
SPINAL FLUID

Case Number	Day of Disease	Character	Pressure	Cells per C. C. M.	Globulin Nonne	Copper Reduction	Wassermann
I	3	bloody	+				—
	4	sl. bloody	+				—
	6	clear yellow	+	250	+	—	—
	14	" "	+	200	—		—
	21	clear	+	250	+		—
II	5	"	norm'l	1152	+	+	—
III	3	"	+	43	+	—	—
IV	15	"	norm'l	7	—	+	—
V	16	"	+	9	—		—
VI	14	"	norm'l	135	—		—
	21	"	+	50	—	+	—
VII	15	"	norm'l	70	—	—	—
	6	"	"	10	—	—	—
VIII	13	"	"	4	+	—	—
	20	"	"	8	+	—	—
IX	9	clear yellow	"	250	—		—
	16	" "	"	80	—	+	—
X	14	clear	+	94	+		—
	21	"	norm'l	7	—	+	—

BLOOD COUNTS

	White	Polys.	Mono.
I.	9,200	67	43
II.	10,600	85	15
V.	17,000	90	10
VI.	15,480	81	19
VIII.	10,400	80	19
IX.	10,120	82	18
X.	6,480	78	22

SEASON

January 1920 to April 1920, 1 case.
May 1920 to October 1920, 3 cases.
November 1920 to April 1921, 1 case.
May 1921 to October 1921, none.
November 1921 to April 1922, 5 cases.
Winters of 1920 and 1921, 7 cases.
Summers of 1920 and 1921, 3 cases.

PRESIDENT'S ANNUAL ADDRESS (1921-22) TO THE WAYNE COUNTY MEDICAL ASSOCIATION

SUBJECT: "THE ADVANCEMENT OF MEDICINE IN DETROIT"

JAMES E. DAVIS, A. M., M. D.

To have served as the President of Wayne County Medical Society for the year 1921-22 is an honor and privilege which I have very highly prized. The extension of my opportunity to serve you for the longer period of five years as your trustee is appreciated very fully as an obligation and trust at a crucial time in the history of medicine in Detroit.

The opportunities of the past year have been very completely taken and intensively utilized in constructive work for permanent benefits to the society. My associated officers have given a year of splendid co-operation and enthusiastic service to which the members in general have returned sympathetic response.

This address is given late enough in the 1922-23 year to afford an opportunity for prophesy regarding our new officers. The assurance of the best year in our history is now felt by all who are closely familiar with the affairs of the society and I am certain that whatever features of last year's work possess merit will be continued in this year's program.

The subject, "Advancement of Medicine in Detroit," should appeal to all members of the profession who are in the active medical life of the city. There are many reasons for this appeal and some of these worth mentioning are the following: Detroit is said to be the only city in the world having over 500,000 in population that is without a completed university. Detroit has perhaps more diversified medical units than any other city in the United States or Europe. A partial list of these units are as follows: Board of Education Medical School, School of Pharmacy, Junior College,

(giving pre-medical school work). The Welfare Commission, with a Receiving Hospital, County Hospital, etc.; the Board of Health, with the Herman Kiefer Hospital, a Tuberculosis Sanitarium, Clinics and School Inspection Departments; the County Physicians; the City Physicians; the Coroners; the Y. M. C. A. School of Pharmacy; the eleven or more medical scientific societies, etc.

Detroit has been designated a city from which an unusually small amount of research work is reported and current medical literature receives but little aid from Detroit contributors because the devotion of our profession to the daily program of medical business is in undue proportion to that spent upon pure science.

In Detroit the percentage of autopsies performed and the number witnessed by the profession is unduly small. In 1921 there were 10,382 deaths in the city, including all cases from the three months' intrauterine period forward, and from this number only 841 autopsies are recorded. Of this number but 363 were done at all the hospitals and by all the physicians of Detroit. The remaining 478 were Coroner's cases. It is fair to assume that the percentage would reach almost the vanishing point if only the complete autopsies were counted. Our percentage as given yields a rating of only 8.1%, including Coroner's cases or 3% without them. In signed reports from the following cities the percentage are as follows: The Montreal General Hospital, Montreal, 88.54%; the Mayo Clinic, 84%; the Royal Victoria Hospital, Montreal, 70.4%; the University of Michigan Hospital, 53%; the University of Minnesota, 50%; the Lakeside Hospital, Cleveland, Ohio, 48.4%; the Massachusetts General Hospital, Boston, 38%; the Cook County Hospital, Chicago, 30%; (Coroners' cases are not included in either of the two latter hospitals). In Edinburgh University Hospital there were 367 autopsies last year. The population of this city is according to Putnam's 1921 Atlas, 320,315, while the population given by the same authority for Detroit is 993,678. In Glasgow University Hospital approximately 460 autopsies were obtained last year, for undergraduate and post-graduate teaching. In Vienna, Austria, three teaching hospitals had last year 4,800 autopsies. Putnam's estimate of the population in this city is 2,031,498.

In Detroit medical teaching is not very popular. We have no established post-graduate teaching. There is but one lecture foundation and this is only a year old. There are no teaching fellowships to encourage sustained research endeavor.

Without further consideration of our deficits an examination of available assets will suggest much to encourage real vision and stimulate true progress. Detroit is a dynamic city of 1,000,000 population, with an assessed valuation of $1,853,196,420.00, or $1,850.00 per person, yielding a tax income of $51,235,-633.50. It is the fourth city in size and riches in the United States and the thirteenth or fourteenth world city in population, but undoubtedly the tenth in wealth.

The state of Michigan has a population of 3,668,412 and has had an increase of 30.5% in ten years; a growth exceeded only by Arizona, Montana, Wyoming, Idaho, District of Columbia and California. We have but two universities in the entire state. One of these is greatly over-crowded. In Detroit we have a Junior College, which is greatly crowded. This institution is giving the first two and three years of university literary and pre-medical work. The student population in this institution is 2,000. Of this number 285 are pre-medical students. The Cass Technical School has 10,207 students, making a total population in the two schools of 12,207.

The object of the above quotation is to set forth the extent of interest in education where special courses are provided advancing to professional education.

In Switzerland where the population is about the same as Michigan, there are seven full universities, the largest attendance in any one of these is 1626 matriculated students. The total attendance in all their universities number 6,444. The Swiss University standards are high, for Great Britain and Switzerland met in conference this summer for the purpose of arranging an exchange of professors and students.

In Scotland with a population of less than 5,000,000 there are four full universities and six medical schools. In New York, Chicago and Philadelphia, each city has four class "A" medical schools. In Detroit we have one medical school, without endowments and without adequate buildings. This fall 285 students sought admission to the freshman class. Fifty-five were registered and this number exceeds the capacity of the school equipment. At the present time the students who complete seven years of college and medical work in Detroit receive but one degree. This is unfair and unjust and our medical society should be interested in securing for her young medical men rights which are commonly accorded elsewhere.

The present divisions of medical work in Detroit are in part very satisfactory and also in part unsatisfactory. There are two considerations, one of these in its ultimate analysis includes both. The first concerns the result at-

tained in services to the public in general and the second is of necessity concerned with the equipment of those who give the service and the facilities afforded for doing this work.

A few specific conditions will be mentioned for serious consideration. The first is concerning the facilities afforded all physicians and all medical students in Detroit to witness or have done autopsy work. If last year's record is taken there would be one autopsy for each student and physician every two years. To visualize terminal pathology in the six great systems—gastrointestinal, respiratory, cardiovascular, cerebro-spinal, osseous and genito-urinary, allowing one case for each system, twelve years would be required before the exhibit could be completed. This makes the vividness and reality of structural changes resulting from disease processes become only a memory and a record some one has written in a book. During the past summer it was my privilege to witness and take appropriate notes upon more than 350 autopsies, in Vienna, during a period of 2½ months. It is quite impossible to compete in knowledge and keep pace in progress with men who continually have this kind of opportunity for reading structural changes as written in the freely exposed body tissues, when *we* content ourselves by reading *their* observations written in a foreign literature. The opportunities for pathology are in part limited in general practice by that great uneducated public to whom the very word "post-mortem" is suggestive either of morbid curiosity or diagnostic failure. Nothing is more discouraging to accurate diagnosis, to careful clinical study, than the certainity that one's results can neither be confirmed nor confuted. We learn from our failures, our mistakes and uncertainities, but only insofar as we can eventually confirm them. *The mysteries that remain forever unsolved leave us only annoyed and with less clinical enthusiasm for similar cases in the future.* Our knowledge of morbid anatomy atrophies from disuse and pathology ceases to affect the practitioner as soon, and as completely, as the practitioner ceases to affect pathology.

The Coroner's autopsy service last year recorded 478 cases and this year 575 in approximately nine months. There is but little scientific use made of all of this material and there is no good reason why one or more of these cases could not be exhibited daily at a convenient hour for the general advancement of pathological knowledge in Detroit. The Wayne County Medical Society is the proper channel for an enabling movement to be organized that will make possible and practical this opportunity.

During the past year a step was taken toward the correlation of Detroit's clinics. A listing of the several units was carried in our Bulletin. This work should be further organized and Detroit should be in competition with St. Louis, Chicago, New York and Philadelphia in the Medical Clinics of North America. The reader is asked to scan page three. Advertising Department of the A. M. A. Journal, of October 14, 1922, and observe the enterprise of St. Louis, a city with perhaps 250,000 smaller population than Detroit.

Almost every large city in the United States but Detroit, is carrying on organized and consecutive post-graduate medical work. In the September 30th Journal of the A. M. A., Chicago has ten different advertisements offering this kind of work; New Orleans has two; Harvard Medical School has one; New York has one and Washington University at St. Louis has one. The demand for this instruction is active and evident in Detroit. Last year a teacher from another city gave a short post-graduate course to specialists and two courses were carried through at the Woman's Hospital. This year already 16 or more men have organized courses desired for their specialties and are now at work.

The activities of two of Detroit's medical units can be specifically commended for both progressiveness and aggressiveness. Both have met some opposition and criticism. During last year our County Society, through its public health committee offered its services as a clearing house for some misunderstandings which had arisen in the ranks of the profession concerning certain Board of Health clinical work. The outcome has been apparently quite satisfactory to the society and to the department of health. The latter recognized the suggestions of the profession and in turn a new feeling and a better understanding prevails towards this department, which is without doubt one of the most efficient and aggressive public health services in the country. The extent of the activities of this department is much greater than most of us appreciate. The willingness of the leaders of the Board Health work to affiliate with and co-operate in the work of the County Society is appreciated. It is believed that the full resources of this department are available for aiding any forward endeavor of the society.

The Welfare Commission has the second activity of a very great importance in the medical life of the city. It was just a few days before his death that our esteemed member, Dr. Wadsworth Warren, discussed favorably some plans of advantage to medical education in Detroit. The close affiliation of the work of this

commission with its Receiving Hospital, Eloise Hospital and Home, with that of the Medical Department of the Board of Education is not only important but imperative. It is a credit to the Dean of the Medical School and the Superintendent of the Receiving Hospital that much has already been accomplished in permanent arrangements for the union of activities for both institutions. The great need of both institutions is greater appropriations. The influence of this large society should be used to urge this need.

The magnificent gifts by the city's former chief executive, Hon. James Couzens of approximately $8,000,000 to our Medical institutions is true leadership of the highest type which should stimulate both our lay and Medical citizens in further attention to the appealing opportunity of Detroit as a great Medical center.

The increasing number of medical society units in the city cannot be of service in advancing medicine unless a close affiliation is maintained with the County Society, for there are only seven days in any week and the danger is imminent of utilizing all available time for meetings which must of necessity overlap in many ways. Last year one of these societies held its meetings on Monday evening at the same time as our County Society meetings. It is suggested that a council be formed consisting of one member from each of the eleven or more associations for the purpose of unifying all possible common endeavors.

Our property interests have fortunately advanced in value beyond our expectations. We have outgrown our quarters. A membership of over 1,350 is significant and it is confidently hoped that we may in the near future have a medical home of commanding appearance and importance.

The library is an asset of very great significance and it must keep pace with all progress we shall make. It is time a library of Science for Detroit should be earnestly considered, which would house the literature of the Medical, Dental, Pharmaceutical, Chemical, Bacteriological, Engineering and other scientific societies. This should be a branch of the City library, with an appropriate building and maintenance by the city, This endeavor should be made at once in order to simplify the future building plans of the Society.

The subject of this paper is incompletely discussed without a consideration of what militarists would call the "man power" and its enlistment possibilities. It has been truly said that no city in America has a more harmonious profession than that of Detroit. This condition is a valuable asset, but it is not enough. The strenuous life of active progress calls for more sacrifices than are at present being made. *If a few men with financial ability and scientific scholarship would give up a part or all of their daily routine practice and devote themselves to the sole cause of medical advancement, Detroit would quickly move towards leadership in American medicine.*

The history of medicine in Europe and in America has had periods of marked advancement which are characterized by the outstanding influence of a relatively small number of men who have cared more about teaching medicine than earning money from it.

In the early part of the nineteenth century, London surgery was of outstanding prominence and this was largely due to two men, Sir Astley Cooper and John Abernethy. At the early age of twenty-five, Cooper was professor of anatomy in Surgeon's Hall. His fame is due very largely to his great ability as a teacher and writer. He ligated the abdominal aorta about the year 1815 under pre-anesthetic and pre-antiseptic conditions. He had in his house probably the largest and most valuable private collection of pathological specimens in the world.

Abernethy was distinctly an investigator. Though a surgeon he worked constantly upon chemical and physiological experiments. Comparative anatomy was his favorite pastime. He was kept in the position of Assistant Surgeon at St. Bartholomews for twenty-eight years before being made surgeon at the age of 51.

The outstanding influence upon all at this period was the foregoing work of John and William Hunter, both of whom were teachers, anatomists and pathologists of outstanding merit. The marvelous dissections and collections of these two men are now in the museum of the Royal College of Surgeons at London, and the Hunterian Museum at Glasgow. It was my privilege to examine both of these remarkable collections about two months ago. It has been said that neither of the Hunters were satisfied with success in practice and nothing else. The investigations carried on by William Hunter, relating to the lymphatics, embryology, structure of the gravid uterus, malformations and the cellular membrane, are very unusual. It is said of him, "he brought great men into the intellectual world of medicine."

John Hunter lacked sadly in his early education for he neglected school and hated book learning, but he was an investigator, a collector of anatomical and natural history specimens. His interest in physiology and comparative anatomy was most unusual. Notwithstanding the oft quoted saying, "I must go and earn the

damned guinea." He must have earned enough guineas to pay for his "laboratory" outside of London, which really consisted of "a farm, a menagerie, an institute of anatomy and physiology." He had original records of the dissection of 315 different species of animals. It is noteworthy that Edward Jenner was one of his house pupils. John Hunter's museum contains 13,000 specimens. He was a great investigator, an accomplished naturalist, a skillful anatomist, a physiologist, an experimental pathologist and the founder of scientific surgery.

From the foregoing periods it is interesting to pass to the era of antiseptic surgery, and consider for a few moments its hero, Lister, who prepared himself for his epoch making work by long continued painstaking pathological research. The pyemias and inflammations were very intensively studied with the microscope and very numerous camera lucida drawings were made by him in his study. It is certain that aside from his fame in surgery Lister had a foremost place in pathology. He only remained in practice twenty-seven years from the year of his appointment to the chair of clinical surgery at Edinburgh. *He retired in order to have more time for scientific study.*

Dr Costa has written that "never in the records of medical history have so many surgeons gathered together in one city at one time as constituted the teaching force of Paris in the reign of Louis Philippe, 1815-1850." The city then contained the very best organized hospitals in the world. The 20,000 hospital patients were used for instruction of students. Subjects for dissection were plentiful. This was a time when dissection was viewed with horror in England. The interne was still a student of medicine, *he remained in the hospital for four years* and received a salary of 400 francs a year with board and lodging. He was allowed to take private classes and quiz students. There were over 30 hospitals and about 5,000 students of medicine in Paris at this time. France was then the laboratory of the world.

The rise of the French school marked the decline of the Edinburgh school and the rise of the Dublin school. Both were prominent because of a few devoted, talented and self-sacrificing teachers of medicine. From the Edinburgh influence, came the University of Pennsylvania, the oldest medical school in the United States. Two men, Graves and Stokes, master and pupil in Ireland, at this period founded the type of clinical teaching prevalent in America today. They taught medicine at the bedside. Stokes published the first work in the English language on the use of the stethescope. He is ranked the second greatest cardiologist in the history of medicine.

Just a little later the first pathological society in the English speaking world was established at Dublin in 1838. Here Osler's "Alabama Student," John Y. Bassett, must have studied for his "credo" is an inspiration from pathology and his words, "The world is *too* much with us," is doubtless a reflection upon the routine practice of medicine.

A more recent great influence upon world medicine has come from the Viennese and German schools. Among the first great personal influences were Skoda and Rokitansky of Vienna, who definitely established clinical pathology. Physics and structural pathology were studied by unique methods. First, the teachers gave themselves, second the patient and finally the autopsy all for the science of disease and its study by those who came to learn. This type of instruction involves remuneration by salary and from fees paid directly by those instructed. Post-graduate and to a very considerable extent, under-graduate instruction has been to quite an extent standardized throughout the world after the Viennese plan, which has now been used for 80 years. The fertility of this plan can be judged by the yield in literature. The College of Physicians, Philadelphia, received in 1920 from all languages 940 books and of this number 330, or 35% were in German. In 1921 there were 1,029 books received. Of these 302, or 29.3% were German. Bibliographical references in modern anatomy are predominently German and this is not strange when one considers the statement made to me by Prof. Oskar Stoerk of Vienna that since his service in pathology began they have had over 100,000 autopsies. In the museum of pathology at the Algemeines Krankenhaus, Vienna, there are 65,000 catalogued specimens.

The emphatic influence of the Viennese and German schools is sure to continue so long as their teachers, clinicians and research workers have the freedom now possible from the daily exactions of the commercial side of practice, and so long as favorable public sentiment and material for work continue as at present.

The newest school of medicine is the American. The two commanding influences which are most discussed in Europe are the Rockefeller and the Mayo Foundations. Singularily the College of Surgeons, the College of Physicians, the American Medical Association and our Universities are not regarded as factors which are disturbing rivals for the ultimate prestige of scientific medicine. Two questions are invariably asked concerning American medicine. The first concerns the *exclusive devotion of the unit power, (the life of the*

worker), whether single or composite to the cause of science, and the second involves material resources of money and availability of clinical and anatomical materials. It is everywhere conceded that we have the money but *otherwise* we *are unproven.*

CONCLUSIONS

The advancement of medicine in Detroit depends upon our recognition of the historic fundamentals which have governed medicine in the past three centuries. The need is for a group of men who will either give freely of their means to support others or forego the shekels of practice and give themselves freely to investigation and teaching. Correlation of effort and assembling of materials, such as library equipment, teaching facilities and autopsy service so as to have the benefits therefrom extended to the entire profession is imperative. Detroit should have a large and effective Municipal University which would be in keeping with her dignity, wealth and cultural needs. A new and imposing Medical College building should be immediately provided and this should be one unit of a group of Municipal University buildings. A Science Library building is a third necessity for the advancement of all the sciences in Detroit. All of these requirements should be impressed upon the community. The best system of education is that which draws its chief support from the voluntary effort of the community, from the individual efforts of citizens and from those burdens of taxation which they voluntarily impose upon themselves. The best that we can do for one another is to exchange our thoughts freely and that after all is about all.

OUR OPPORTUNITY IS OUR PROBLEM

The Wayne County Medical Society should always exercise a centralizing influence. It should be a forum for thought and speech. It should be the paramount medium of influence to the public and for the profession in Detroit.

N. B. It is gratifying to report that since the above paper was read, Dr. William E. Blodgett has given $5,000 for an Annual Lecture Foundation in Orthopedics and the City Public Library Commission has voted to take over the management of the Wayne County Medical Society Library and allow a most liberal appropriation annually for the purchase of new books.

NON-TUBERCULOUS INFECTIONS OF THE KIDNEY

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For many years text books have taught that pyelonephritis, pyelitis, and pyonephrosis are distinct disease entities. However, it has been fairly well established that they are different stages of one and the same pathological condition.

Bacterial invasion of the kidney is, of course the fundamental process and in its development distant foci of infection and urinary stasis play an exceedingly important part.

In recognizing the facts that large numbers of living bacteria normally pass through the kidney and are excreted, (the majority fortunately doing no damage) and that once destroyed kidney tissue is forever lost to the organism, we must realize the vital importance of early recognition of kidney infection. Through the advent of the cystoscope, the X-ray and more recently functional tests, both excretory and retentive, the diagnosis of surgical kidney can be made much more accurately and much earlier than it could only a very few years ago.

Let us now consider the paths of bacterial invasion of the kidney. There are three possible ways by which bacteria may reach the kidney, by direct invasion up the ureter, through the lymph, and through the blood stream. For many years all kidney infections were held to be ascending ones. This view undoubtedly arose from the fact that early symptoms for the most part are referable to the bladder. The relative frequency of pyelitis in the female child, the shortness of the female urethra, the unguarded bladder and the ease which the colon bacillus may enter the urethra are still held by some authorities as an argument for ascending infection.

In 1919, Buerger arrived at the conclusion that in a very limited number of cases ascending infection did take place, ascending at least in the sense that the bladder was the primary focus of infection. Whether this ascending infection took place by direct extension or late embolic invasion he was not able to say. He does not believe, however, in ascending lymphatic infection of the wall of the ureter. Thus quoting Halle and Motz he says: "We have yet to find profound ureteral ostial lesions at the bladder with complete integrity of the corresponding kidney." The fact that the bladder heals after nephrectomy seems to me to speak strongly against this organ being the primary focus in its relation to the kidney infection. It would seem that ascending ureteral infection rarely occurs and then only in the presence of an abnormal ureteral sphincter.

The theory of bacterial lymphatic invasion directly from the intestinal tract to the kidney is still held by many authorities to be possible.

Eisendrath showed in experimental work done upon dogs the possibility of ascending lymphatic invasion along the course of the ureteral lymphatics. He did not take into account apparently that the lower third of the ureter drains into the pelvis and that there is no lymphatic stream which proceeds up the ureter, the lymphatic supply of the ureter being segmental in character.

In 1911, Brewer called attention to the fact that hematogenous infection was responsible for the greater number of cases of renal sepsis. Up to this time and for some years afterwards the theory of ascending ureteral infection held full sway. It was largely through the efforts of Cabot and Crabtree in emphasizing the predominance of hematogenous infection that the prevalent idea of the frequency of the ascending route was changed. Cabot noted the fact that while it was generally recognized that cocci reached the kidney through the blood stream, it was still considered that colon bacilli reached the kidney by the ascending route, because of the fact that the most important lesion is in the kidney pelvis.

Suffice it to say then, that of the three modes of invasion, the present consensus of opinion seems to favor the hematogenous route.

We will now consider in some detail, the anatomy of the kidney in order that we may understand more accurately the mechanism of bacterial invasion. When we consider the anatomy of the kidney we should have in mind that the unit of kidney structure is the glomerlus with its afferent and efferent vessels and the attending system of tubules. The gross kidney as we know it is simply an aggregate of many thousands of these units contained in the kidney capsule. The glomerlus and convoluted portion of the tubules are cortical in position, the Henle loops and collecting tubules dipping down into the medullary portion. From a surgical point of view, the important anatomical point to be considered is the blood vessel arrangement in the kidney. It will be remembered that the vessels break up to form a series of arches which lie between the cortex and medulla, the so-called arcuate arteries. From these quite large vessels, the so-called interlobular arteries are given off which lead outward into the cortical portion, and much smaller vessels, the arteriae rectae verae, turning backward supply the medulla. It will be especially noted (as shown in Plate I and II) how much richer the blood supply of the cortex is than that of the medulla and how much larger and easier of access to foreign bodies the interlobular arteries are than the arteriae rectae verae. The cortical substance is the arterial side of the kidney, the blood coming to this portion for purification. The blood channels of the medullary portion are chiefly venous carrying the purified blood back to the general circulation.

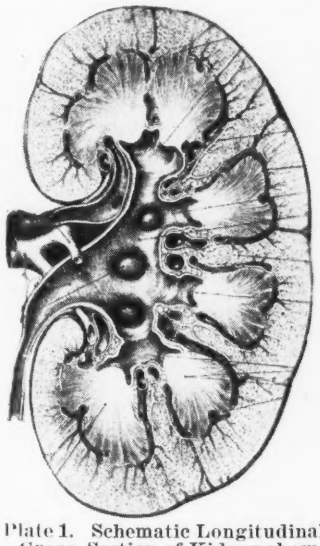

Plate 1. Schematic Longitudinal Gross Section of Kidney showing the relations of the Blood Vessels to the Cortex and Medulla. (Kelly-Burnham).

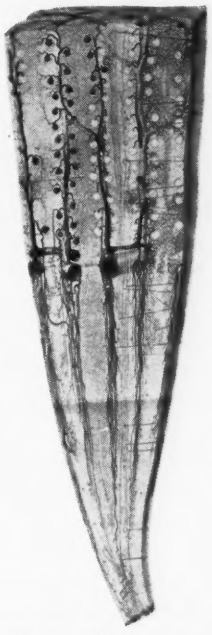

Plate 2. Schematic Microscopical Section of a few units of kidney showing that the main blood supply is distributed to the cortex while the vessels to the medulla are minute and few in comparison. (Kelly-Burham).

For convenience, kidney infections may be divided into three groups; (A) Colon infections, which show a predilection for the medullary collecting portion of the kidney, the straight collecting tubules, the pelvis and ureter. (B) Infections caused by cocci, which attack

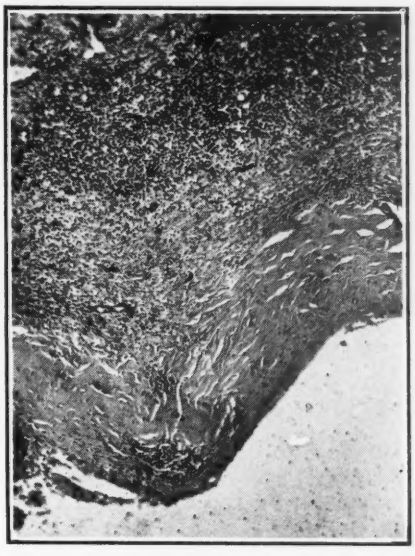

Plate 3. Old pyelitis with ephithelium replaced with hyaline connective tissue

the filtering portion, the cortex. (C) Mixed infections—where both medullary and cortical structures are involved.

Group A—Colon infections. Approximately 80 per cent of all kidney infections are the so-called pyelitis cases and come under this group. The colon bacillus instead of lodging in the glomerulus passes through it and finds lodgment in the tubule. During the acute stage, the infection is limited to the tubule. At this stage there is really a true nephritis. When the invading micro-organisms reach the pelvis proper, the latter also becomes infected thus producing a pyelonephritis which we more commonly call a pyelitis.

There are certain cases of pyelitis where a carefully noted history gives no ascertainable clue as to the cause of the infection. There can be no doubt that there is some cause which precipitates the attacks, whether it is a lowered resistance to the invading organisms, trauma or circulatory disturbance. Many of the infections have undoubtedly existed intermittently since childhood; that is, intermittently as far as gross pus is concerned, but, we must remember that these urines are probably never bacteria free.

There are other cases when mechanical obstruction is a causative factor. The obstruction may be located anywhere below the kidney, in the urethra, at the vesical neck, or in the ureter.

Some cases form a vicious circle, the bacteria in the bladder, prostate and vesicles are carried by the blood stream from there to the already damaged kidney, only to be excreted again.

Colon infections may also result from circulatory changes, from exposure, or from trauma. Under this heading is included the movable kidney with a temporary circulatory disturbance or obstruction of the ureter. However, my observation leads me to believe that the percentage from this cause is small. The pressure of the gravid uterus plus the functional disturbance of an over-worked kidney leaves a fertile soil for the colon bacillus.

Without a mechanical or circulatory disturbance and no serious constitutional disease present, most pyelitis cases are of short duration. In fact, I think many of us harbor a mild pyelitis at times without being cognizant of the fact.

When a pyelitis persists, however, the kidney pelvis loses its elasticity and with this decrease of contractile power, becomes lax, the walls thicken and there is a tendency to sag. While this is taking place, bacteria enter the kidney proper from the infected pelvis (by way of the lymphatics) with a corresponding decrease of kidney function as the invasion progresses.

Having dealt with our first group which attack the collecting portion of the kidney, let us turn now to the second, the coccus group which attack the filtering portion of the kidney.

The most common organisms of this group are the staphylococcus and streptococcus pyogenes. Reaching the kidney by the blood stream, they act here as in any other organ by forming small circumscribed abscesses. These

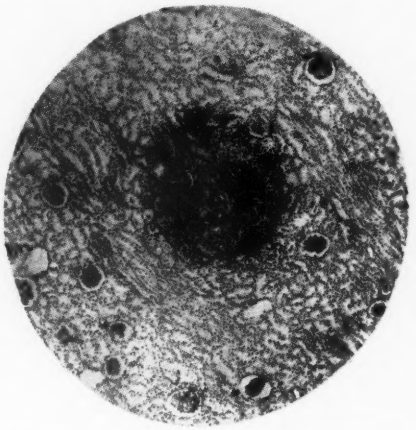

Plate 4. Miliary abcess around glomerulus in early cortical infection.

abscesses are usually a glomerular lesion, a rapid thrombosis occurring, although at times when the clumps of bacteria are large enough

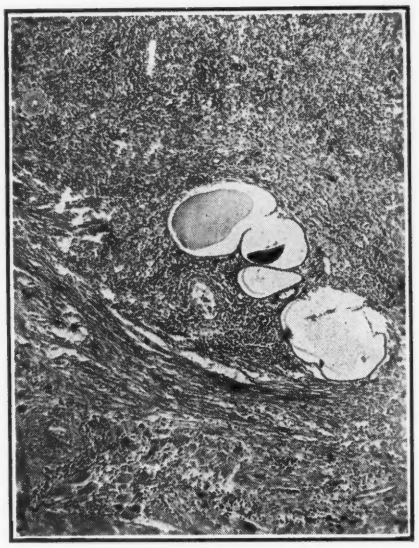

Plate 5. Late cortical infection: dilated tubuler and round cell infiltration.

the smaller vessels are plugged. As a rule a lesion pyramidal in shape, resembling an infarct is found. The anatomical arrangement of the kidney does not allow the infection to spread laterally from the renculus, and thereby the bacterial invasion is limited. It is possible,

however, as mentioned above to have an embolic plugging of the vessels at the base of the pyramid producing an infarct. After the for-

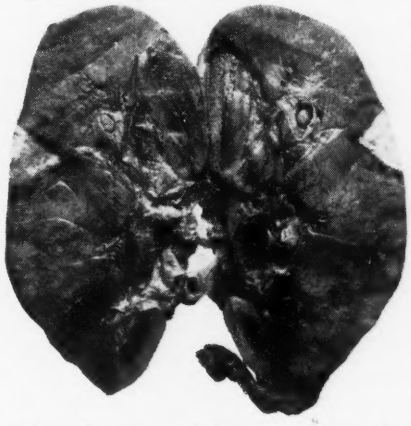

Plate 6. Cross infaret accompanying endocarditis.

mation of these minute abscesses in the kidney cortex, their drainage is principally toward the periphery, and very often a perinephritis results. If free pus is formed there is a perinephritic abscess. If there is no free pus, these cases go on to recovery with the inflammation limited to the cortical substance and fatty cap-

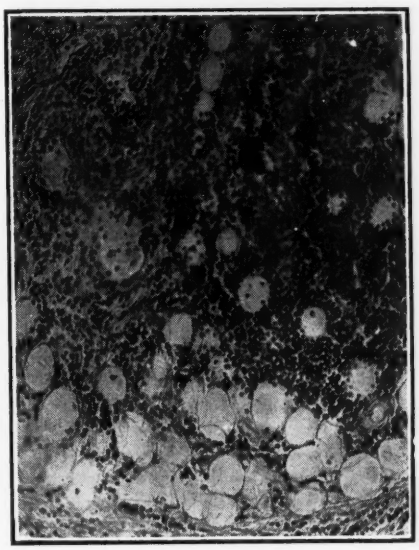

Plate 7. Perinephritis—The infection originated in the cortex and travelled towards the periphery involving the capsule and surrounding tissues.

sule. It might be well, at this point to make the distinction between peri and paranephritic abscesses. In perinephritic abscesses the infecting agent comes from the kidney itself, while in paranephritic abscesses, the bacteria comes from some other neighboring source by extention or gravitation (for instance a necrotic vertabra) and the pus is only in the vicinity of the kidney which is itself free from infection.

Brewer has emphasized the severe streptococcus and staphylococcus infection which are often mistaken for acute intra-abdominal conditions. In this type there is an acute focal necrosis, the lesion being pyramidal in shape and in the form of an infarct. These cases of overwhelming virulent invasion cause a very rapid destruction of the kidney tissue before the perinephritic formation of free pus can take place. Frequently operative exposure within 48 hours after onset of symptoms shows a pulpy mass with the kidney tissue nearly destroyed.

In contra-distinction to the pus ladened urine of the colon group, we have in the cortical infections, a macroscopically clear urine, the drainage being towards the periphery and away from the collecting portion of the kidney. Culture of the urine, however, as a rule shows the presence of the invading micro-organisms. As the lesion progresses and abscess formation takes place, rupture into the tubules may occur with consequent gross pus in the urine.

In the third group, the mixed infections, both the cortical and medullary structures are involved. Here we believe that the coccus is the primary invading organism and this is followed by the colon bacillus. In defining this third group we are moved by the fact that these patients show symptoms of a coccus infection while the urinary and culture findings are those of a colon invasion.

Bumpus and Meisser of the Mayo Clinic have recently drawn the conclusion that pyelonephritis may often be due to focal infection harboring a selective affinity for the urinary tract and that the colon bacillus which is commonly found and generally believed to be the cause is of secondary importance.

They cite LeFur who showed that when the colon bacillus was injected in the prevesical space in animals it was recovered in pure culture from the bladder while if other organisms were injected the colon bacillus was frequently recovered with the injected organism. They also cite the work of Forssner, who produced an artificial selective action of bacteria by growing them upon the kidney and kidney extracts injecting them into animals and finding that they had a tendency to localize in kidney tissue.

Building upon the truth of Rosenow's theory of focal infection and elective localization, they obtained green-producing streptococci from the devitalized teeth of patients with urinary lesions, cultured them, and injected these cultures intravenously into rabbits, 89 percent of the animals injected developed lesions in the kidney. Later 208 animals were injected under the same conditions with streptococci taken from patients having diseases other than urinary infection and only seven developed lesions in the urinary tract. In another study 26 rab-

bits were injected with bacteria taken from the teeth and tonsils of patients suffering from pyelonephritis; 21 of these animals showed lesions in the kidney.

While the work of Bumpus and Meisser is too recent to have received confirmation, it seems to us that it can explain a certain number of our so-called idiopathic colon pyelonephritis cases taking into account the tendency of the colon bacillus to outgrow and usurp the whole field.

This explains to our mind the third group of infections where the urinary findings are indicative of colon infection and clinical findings at first of cortical.

We will now consider the effect of back pressure on the pathogenesis of kidney lesions in general. In 1896 Tammann pointed out the fact that if the arterial pressure exceeds osmotic pressure of the blood colloids, a solution will be filtered through the glomeruli, containing all blood elements except colloids, since the glomerular membrane is impermeable to colloids.

Starling some few years later found the osmotic pressure of the blood colloids to be 30 to 40 mm of mercury and while it had long been known that the secretion of urine stopped when the arterial pressure fell below 30 to 40 mm. of mercury, he was the first one to bring these two facts into relationship.

Starling also measured the urine (ureter) pressure when it was gradually raised until the secretion of urine stopped and found it to be 92 mm. of mercury. The difference then between the arterial pressure and the urine pressure leaves a normal osmotic pressure of the blood colloids.

With this fact in mind we can see that obstruction in the lower urinary tract or ureter will cause a urinary stasis and back pressure in the tubules interfering with kidney function, lowering kidney resistance, favoring the spread of infection and allowing bacteria to multiply in the stagnant urine.

According to Satani and others the renal pelvis and ureter possess an intrinsic power of peristalic contraction, swollen mucosa, a ureteral kink or the products of an inflammatory process may bring about a motor insufficiency. The question of a motor insufficiency from a neurological standpoint is not as yet clear and will require more detailed study of the nervous control of the ureter before it can be answered. Apparently dilatation of the pelvis tends to conserve renal tissue by lessening back pressure.

With the slowing up of the urinary stream and consequent change in circulation of the walls of the pelvis and tubules, the bacteria have a chance to multiply and invade the epithelial lining of these parts. When obstruction becomes so great that the urinary stream hardly moves at all, the inflammation through lack of drainage, extends into the kidney tissue proper and produces what we commonly call a pyonephrosis or pus kidney. It is our belief that this condition rarely occurs except in the presence of obstruction.

Plate 8. Pyonephrosis—In this the Cortex and Medulla are destroyed and there only remains a cavity filled with pus.

Hunner believes that we can have ureteral stricture without previous kidney infection. He believes that bacteria may be carried directly to the ureteral wall by the blood stream. Inflammatory reaction and scar tissue following, obstruct the lumen of the ureter. If this is so, obstruction may antecede the kidney infection and play a double role in lowering the resistance by back pressure before infection and decreasing the chances of a spontaneous cure after infection.

The role of focal infection in disease is now so well established that attention need not be drawn to it. That focal infection plays an important part in kidney sepsis is not however so generally understood. Due to the fact that the colon bacillus is such a frequent invader it has been taken for granted that the focus in these patients is usually in the intestinal tract. The work of Bumpus and Meisser showing the possibility of oral sepsis as the fore-runner of colon infection is of general interest and well worth our consideration.

So long as the focus exists, be it in the intestinal tract, oral cavity or lower urinary tract we may expect absorption into the blood stream and reinfection of the kidney. So long as mechanical obstruction exists even when all

foci have been removed, will we have a persistance of the infection. The interrelation of obstructive lesion and focus must be appreciated.

BIBLIOGRAPHY

Wolbarst, A. L., Pyuria, Med. Rec. 99; 264, Feb. 12-21.
Lowsley, O. S., Complete and Incorrect Diagnosis in Urological Surgery, N. Y. State J. M. 18; 184, May '18.
Tenny, B., Recognition of Surgical Kidney, Boston M. & S. Jr., 178, 44, Jan. 11th, 1918.
Mayo, W. J., Hematogenous Infections of Kidney, J. A. M. A., 73:1023, October 4, 1919.
Berger, L., Ascending Tuberculosis of Kidney. Am. J. M. Soc. 158:482, October 1919.
Braasch, W. F. and Olson, F. A., Roentgenographic Diagnosis in Renal Tuberculosis. Surg. Gyn. and Obstet. 28:555, June 1919.
Braasch, W. F., Recent Advance in Diagnosis of Surgical Lesions of Kidney, Minn. Med. 3:112, May 1920.
Skillern, P. G., Acute Unilateral Hematogenous Infection of Kidney; Nephrectomy and Drainage, Internat. Clinics, 1:34, 1920.
Cabot, Hugh, Infections of Kidney, Wis. M. J. 18:341, Feb. 1920.
Eisendrath, D. N., Infections of Kidney, Surg. Clinics, Chicago, 4:1003, Oct. 1920.
Souper, H. R., Metastatic Staphylococcus Infection of the Kidney, Brit. M. J., 1:228, Feb. 28, 1920.
Baker, J. N., Role of Obstructive Lesions of Ureter in Production of Persistent Pyelitis, Southern M. J., 13:898, December 1920.
Sargent, J. C., Chronic Non-surgical Pyelitis, Wis. M. J., 16:400, March 1918.
Furniss, H. D., Pyelitis, New York State J. Med., 21:132, April 1921.
Hepler, A. B., Acute Metastatic Pyelitis, U. S. Navy Med. Bull., 15:18, Jan. 1921.
Curbus, B. C. and O'Connor, V. J., Infections of Urinary Tract with Consideration of So-called "Pyelitis" Group. Wis. M. J., 19:626, May 1921.
Bumpus, H. C., Jr. and Meisser, J. G., Focal Infection and Selective Localization of Streptococci in Pyelonephritis, Arch. Int. Med. 27:326, March 1921.
Walker, G., Secretive Pressure of Kidney As An Index of Pathological Conditions. Am. Surg. 73:610, May 1921.
Cabot, Hugh, Infections of Kidney, J. Iowa Med. Soc. 11:1, January 1921.
Cabot, Hugh, Role of Colon Bacillus in Infections of Kidney, New York State J. Med., 21:35, Feb. 1921.
Brewer, G. E., The Present State of Our Knowledge of Acute Renal Infections, J. A. M. A., July 1911.
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MENTAL AND BEHAVIOR CHANGES IN CHILDREN FOLLOWING ENCEPHALITIS*

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During my membership on the staff of the Institute for Juvenile Research of the Department of Public Welfare of the State of Illinois, Chicago, there was brought to the attention of the Institute, during the course of the daily clinic, a number of cases of mental and behavior changes following encephalitis. These children were brought to the Juvenile Institute by various charitable and social organizations because they had become serious behavior problems. Some had been expelled from the schools of Chicago because of behavior difficulties. Others had been brought to the attention of the Chicago Juvenile Court because of some delinquency or had come to the knowledge of some member of the social service staff of the Juvenile Institute.

All these children had shown so many bizarre and strange changes in both their personality and behavior that they had become problems in their home and school environment and had been brought to the Juvenile Institute for aid in diagnosis and disposition of the case.

The literature contains few references to mental changes in children following encephalitis and because of this rarity it is believed a report of these cases will be of interest.

The striking observation about these children is that previous to their illness they were, as near as is ascertainable, normal children, were progressing satisfactorily in their school work and were getting along well at home and with their playmates. Following their illness they showed changes in their personality, varying from insanity to incorrigibility. Some who never stole became inveterate thieves; some who never lied, became confirmed liars. They showed such changes in their personality as incorrigibility, marked emotional changes, sexual delinquency and destructiveness. They were cruel to animals, quarrelsome, and even attacked smaller children. One child attacked a neighbor child with a butcher knife. Several have, what they themselves, call "panting spells," which were attacks of rapid breathing that appeared when they were not permitted to do as they pleased or under such slight mental effort as writing numbers on a piece of paper. These attacks were quite involuntary, occurring at times when the child did not know it was being watched and evidently cannot be inhibited at will.

Emotionally they were very unstable. Persuation had no effect upon them. They cried uncontrollably and they were equally liable to laugh uncontrollably the next moment.

The changes which occurred in the behavior and personality of these children were so many and varied that a recital of those observed in each case will better convey some of the sequellae of encephalitis in children.

REPORT OF CASES

CASE 1

Margaret M. was thirteen years old and had an attack of lethargic encephalitis in November 1920, having been treated at Wesley Hospital. Previous to this illness she had been well behaved and had reached the fifth grade in school at eleven years. Following it she was unable to continue in school and it was found necessary to place the girl in a number of institutions in none of which did she remain for any great length of time. She was detained in the Chicago Juvenile Detention Home for varying lengths of time on five different occasions. She was so anti-social that it was not possible to keep her in any boarding home. She was very quarrelsome, stuck pins in the other children, swore, knocked other children down, made extravagant statements, mostly untrue, thought people were "picking" on her and was generally incorrigible.

*From observations made at the Institute for Juvenile Research, 721 S. Wood St., Chicago, Ill.

She was, however, quiet when questioned, and answered promptly. Her facial expression was dull, masque-like and showed no emotional display. She slept very poorly at night.

Physically she had an absent right knee jerk, an inactive reflex right triceps, a coarse tremor of the head and a stuttering speech.

Binet-Stanford mental tests gave her a mental age of ten years and two months with an intelligence quotation of 78.2% when her chronological age was thirteen years. This classified her as a moron.

Following several examinations she was finally sent to the Psychopathic Hospital were a schizophrenic reaction was found, she was adjudged insane and sent to the Kankakee State Hospital.

CASE 2

Ethel S. was thirteen years old and had been well until November 1919, at which time she had the "flu" with an accompanying encephalitis. She was ill three weeks. Previously she had done excellent work in school, had won honors, was obedient and well mannered, but following this illness she underwent a complete change in her personality. Her scholastic work became so poor and her deportment so bad that she was dismissed from school. She began to have what she, herself, called "panting spells." When under any strain, excitement, or even when she became interested in some sort of work, she would breathe as rapidly as if she had been running and would continue to do so for ten to twenty minutes. Sometimes these attacks could be averted by scolding or diverting her attention, but she was also known to have had these attacks at night. Sometimes she would blow on her fingers throughout the length of the attack. Frequently she would cry, moan, or tremble, run aimlessly about the room, bite her nails, would occasionally bite others, and even strike or throw objects at them. Often she would spit on people near her. Now and again she would tear paper or her clothing. While at the Children's Memorial Hospital she spit chewing gum during one of these attacks into the hair of the Chief of Staff.

At other times she tore her hair and ate it. She was very destructive, ate the calcimine off the wall and cut up her nightgowns. She was very stubborn and tormenting, but often was excessively affectionate and demonstrative. She slept poorly at night, a condition which was quite common among these post-encephalitic patients.

Her mental age was found to be ten years and two months when her chronological age was thirteen years which gave her an intelligence quotient of 83.5%. This classified her as a moron.

She was examined and treated in various hospitals but was found to be so incorrigible that she could not be kept with other children. She treated them cruelly and tormented them continually. She became a chronic masturbater and taught others the habit.

When she was heard of last, she was being cared for in her own home, but continued to cause so much trouble that she was brought to the Juvenile Institute several times with a request for disposition.

CASE 3

Grace L. was eleven years old and was previously healthy and well behaved until an attack of Scarlet Fever with an accompanying encephalitis occurred in November and December, 1918. She was detained at the Durand Hospital for about a month. Previously she had gotten along well in school except that her progress was somewhat slow. She had had no behavior difficulties. Following this illness her scholastic work became very poor, her deportment bad both at home and at school and she was dismissed from school because of incorrigibility, after several transfers.

She had "panting spells" similar to Ethel S.; in fact, there was no essential difference between the two cases. She also became quarrelsome, fought, attacked, kicked, spat at others, was disobedient, noisy, constantly restless, talkative, impudent, swore, made foolish statements, lied, was emotionally very unstable, cried easily, and was equally liable to laugh the next minute. She was unnecessarily affectionate, unclean and untidy. She slept a great part of each school session and then lay awake at night. Once she shouted out in the schoolroom when a distinguished visitor was present, "You are cute."

On mental examination she had a mental age of seven years and ten months when her chronological age was eleven years, which gave her an intelligence quotient of 72.3%. This classified her as a moron.

She was likewise a problem for disposition, but no adequate place except her home was found in which to keep her. Because of the poverty of the family, this was found to be very difficult.

CASE 4

May S. was fifteen years old and had had lethargic encephalitis in March 1920, during which illness she "slept for three weeks." Before her illness her deportment had been good and she had not been quarrelsome. Following her illness, because of the disturbances which she caused in school, she was expelled. Now she is quarrelsome, dissatisfied, cross, constantly restless and moving, has persecutory ideas with reference to her teacher. She has struck her classmates unnecessarily, is usually obstinate and sullen, but at times very loquacious. But she has had no definite delinquencies.

On physical examination she was found to have a divergent strabismus, a sluggish pupillary light reaction, a coarse tremor of the tongue, and a deviation of the latter to the left when protruded.

On mental examination she was found to have a mental age of thirteen years and ten months when her chronological age was fourteen years and ten months, which gave her an intelligence quotient of 93.2%. This classified her in the group with normal intelligence.

She was brought to the Juvenile Institute because of her incorrigibility, but institutional treatment was again not available and the patient is being kept at home with considerable difficulty.

CASE 5

George M. was eleven years old and had had "brain fever" in March 1920. He had been ill one month. Previous to this illness he had made regular progress in school, but following it he was unable to complete his grade, his school attendance became irregular and he frequently went to sleep while in class. He also had "panting spells" during which he breathed as rapidly as if he had been running. Sometimes he blew on his fingers, or upon pieces of paper, a phase of excitement which was similarly noted in the cases of Grace L. and Ethel S. He quarreled, fought, was disobedient, constantly restless, screamed out in his sleep, talked foolishly and silly, was untidy and refused to dress himself.

His mental age on examination was found to be seven years and two months when his chronological age was ten years and three months, which gave him an intelligence quotient of 70%. He was classified as a moron.

He was ultimately committed to the Chicago Psychopathic Hospital because he attacked a neighbor child with a knife. However, he was not ad-

judged insane and was later released to his home where he has since remained.

CASE 6

Solomon H. was fourteen years old and had had lethargic encephalitis in November 1919. He was ill in Wesley Hospital for three months. Before his illness he was a good scholar and his deportment was excellent. In school he had reached the sixth grade at eleven years of age.

Following his illness he was expelled because of his incorrigibility. He was quarrelsome, quick tempered, disobedient, struck at and slapped other children and frequently threw anything at hand without provocation. He was very restless and constantly active. He muttered to himself, made facial grimaces, was impudent and bold toward strangers.

Physically he had a tremor of the tongue, a twitching of the face and extremeties, unequal pupils, defective vision, a positive Babinski on the left side, a festinating gait and was constantly drooling.

On mental examination when his chronological age was thirteen years and ten months his mental age was found to be thirteen years and seven months which gave him an intelligence quotient of 98.2%. This classified him as having normal intelligence.

Solomon likewise attempted to attack a neighbor child with a knife and was committed to the Psychopathic Hospital from which he was ultimately sent to one of the State Insane Hospitals.

CASE 7

Marie B. had "brain fever" in 1919 following an attack of influenza. Previous to her illness she had done good school work and was quiet and well behaved. Following her illness she was expelled because of her incorrigibility. She cried easily, had a violent temper, threw dishes at people, and once kicked her grandmother so violently in the abdomen that she knocked her unconscious. She was very cruel, tormented smaller children by twisting their hands, grabbing their throat, bending their legs, or biting them. She lied and made up fanciful stories about people. At times she was unnecessarily affectionate and liked to attract attention. She attempted suicide twice by turning on the gas. She ate ravenously and immediately induced emesis by sticking her finger down her throat.

One of her last escapades consisted in choking two smaller children, for which she was stoned by the angry neighbors and only saved by the intervention of the police. She was taken to the Juvenile Detention Home for her own protection. The following day, however, she persistently denied the delinquencies of the night before.

On physical examination she was found to have rhythmical contractions of the muscles of the left side of the face, a deviation of her mouth to the left, an area of hyperaesthesia in the left lower quadrant of the abdomen and slurring speech.

Her mental age was found to be eleven years and four months when her chronological age was fourteen years and five months which gave her an intelligence quotient of 78.6%. This classified her as a moron.

CASE 8

Irene F. had lethargic encephalitis in 1918. She was placed in various hospitals for treatment and because of her behavior difficulties tried in many homes. She was finally brought to the Juvenile Institute for examination. Previously she had been well behaved and had had no difficulties in school, but following her illness, she had many attacks resembling epilepsy. She became quarelsome, tormenting and incorrigible; she attempted suicide with a knife without serious consequences. She was sleepy during the day and went out at night; shouted and sang while in bed. She had a voracious appetite and has had sex relations with several boys in the neighbodhood. She once fell asleep in the bathtub of the Presbyterian Hospital. Because of her incorrigibility she was committed to the Juvenile Detention Home from which she was ultimately recommended to be committed to the Feeble Minded Colony at Lincoln for want of a more satisfactory institution.

On physical examination except for a considerable amount of lethargy and the fact that the left pupil reacted more slowly to light than the right, she was negative.

On mental examination, when her chronological age was twelve years and three months, her mental age was found to be nine years and two months, which gave her an intelligence quotient of 74.8%. This classified her as a moron.

SUMMARY

These cases, I believe, illustrate a few of the many bizarre changes which may occur in the behavior of children following an attack of encephalitis. While there are a great many characteristics which are common to all, it hardly seems possible to call this combination of symptoms a symptom complex. However, there are a few symptoms which may be mentioned as common to all. All these children were previously normal and following their illnesses underwent complete changes in personality. They became quarrelsome, destructive, cruel, emotionally unstable, untidy, slept poorly at night, were very restless and they were all unable to continue school work and were eventually expelled from school. So called "panting or breathing" spells were quite characteristic and found in three cases.

There were various delinguencies which were not common to all, but which were nevertheless marked behavioristic changes, viz., lieing, stealing, sex hyperactivity, attacks upon smaller children and attempted suicide.

These acts in many instances constituted a serious menace to society and were so antisocial that in several cases the institutionalization of these children became necessary. This institutionalization was, however, in most cases a very unsatisfactory one. Hospitals ordinarily devoted to the care of sick children could not keep these individuals because of their incorrigibility; their committment to insane hospitals was not deemed advisable although two were sent there; and they were not eligible for the feeble-minded institutions. Consequently it was evident that in the State of Illinois there was no satisfactory institution in which to place these children.

We prefer to regard these children as sick both physically and mentally and we feel that states should make some provision for caring for these urgent cases. We believe that the

prognosis for improvement is unfavorable and that these children will become adult behavior problems in due time. Their destructive tendencies and attacks upon others constitute a menace which should demand immediate provision for their care.

PUBLIC HEALTH EDUCATION

The function of the Joint Committee representing the University of Michigan and the Michigan State Medical Society is to present to the public the fundamental facts of modern scientific medicine for the purpose of building up a sound public opinion concerning questions of public and private health. It is concerned in bringing the truth to the people, not in supporting or attacking any school, sect, or theory of medical practice. It will send out teachers, not advocates.

IX.—PHYSICAL EXAMINATIONS (Continued)

THE PHYSICIAN AND PUBLIC HEALTH

JOHN SUNDWALL
Professor of Hygiene and Director of the Department of Hygiene and Public Health, University of Michigan, Ann Arbor, Mich.

In the foregoing discussions of the relations of physical examinations to the promotion of health—positive health, physical efficiency, an effort has been made to show that the periodic "overhauling" with its accompanying instructions and advice relative to the right methods of living and with "follow up" activities whereby it is "seen to" that the recommendations are put into effect; is our most efficient and far-reaching instrumentality by which the physical efficiency program is to be achieved In fact, without the physical examination this most important interest and activity of public health can never be realized.

Furthermore, the disease prevention and control phases of public health depend, in the very largest measure, on the periodic physical examination. Assuredly, if the thorough physical examination with its educational and its corrective accompaniments had been the universal practice, let us say for the past fifty years, the problems of tuberculosis and of venereal diseases would now be solved. Already we have learned that the most serious diseases in our latitude with which we must contend in the future are those diseases that are spread from one person to another by means of close social contact and intercourse. The Carrier, the Prodrome, the Mild or Missed case and the Convalescent—those who keep diseases alive and "a going" in our society, can be detected only by dealing directly with people and through the media of personal inspection and physical examination. therefore, it is the physical examination that is going to prove to be our most effectual weapon of defense and attack so far as the control and eradication of communicable diseases are concerned. Physical examinations, then, are of inestimable value in both phases of public health interests and activities.

It is by no means visionary to assume that in the not far distant future, society, for its own welfare and security, will demand that each of its free individuals carry or possess a "bill of health." Even at this date, public schools, universities, insurance companies, business and industry are demonstrating the academic, social and economic values of periodic physical examinations, evidences of which are to be seen in the carefuliy filed personal records or "bills of health."

During the past era of public health activities in the United States, when the key word was the "germ" and bacteriology represented practically the whole of public health, naturally, the chief exponent of public health was the laboratory worker. Directors and workers in public health were recruited largely from bacteriologists; laboratorians and sanitarians. In fact, contentions were made at that time that the public health field lay quite outside of the medical profession.

Our new era in public health; with its new interest in positive health and physical efficiency and with the newer knowledge that disease prevention and disease control are, in the very largest measures, personal problems; is marked by a definite trend on the part of public health to return to the medical profession. While the engineer, laboratorian and sanitarian will continue to be important adjuncts to public health, its chief exponents or intensive workers in the future, will be the physician and the nurse. There can be no efficient public health without the closest co-operation of the medical profession.

It has already been intimated that in order to conduct a physical examination from the view point of hygiene or preventive medicine; one that will detect early every unfavorable factor which may be causing a present lowered condition of health or which may later, if neglected, develop into some serious malady; requires on the part of the examiner an extensive and intensive training along the lines of both physical and laboratory diagnoses. The first and most essential need; in order to proceed effectively with our future public health program and, therefore, achieve genuine and far-reaching results; is to produce efficiently trained physical examiners. This will be one of the greatest contributions on the part of the medical schools to public health. Assuredly, it is urgent that medical schools give this matter their most serious consideration.

It is needless to point out here that the physician. who is well trained in the methods and technic of making physical examinations and who can interpret the findings with a view of preventing and correcting the various maladies of life, is going to be the most important functionary in future public health activities. In fact one may well say that future public health is to be characterized by the interest and activities of physicians and that genuine progress will be in proportion to the number of scientifically trained physicians interested and engaged in its activities.

Interest in the periodic overhauling is even now wide-spread. People are beginning to demand this fundamental health measure. This wide-spread de-

mand is the direct result of the education of the public along the fundamentals of health promotion and disease prevention. Industries, schools, universities, insurance companies, have and are contributing to this challenge on the part of the people. The physician's chief concern at the present moment should be that no illy-constructed legislation bearing all the undesirable features of compulsory social insurance is suddenly enacted. There is danger, however, unless physicians make this matter their chief concern in the immediate future. It must be understood by the laity that the physician has not been nor is now opposed to any measure which has for its object human betterment. No profession has contributed more freely of its services towards the health of the community than has the physician. Indeed, the medical profession has borne the greatest share of the burdens. The laity must appreciate further that no legislation which has for its object universal medical service must be enacted unless it has the approval of the medical profession. For it is the physician who is going to be chief agent concerned and without his sympathies and approval such laws will be not only non-effectual but even pernicious.

The medical profession, on the other hand, must acquaint itself with the new and growing demands on the part of the public for physical examinations from the view-point of hygiene and preventive medicine. The more it discusses this problem with a view of organizing to meet these demands the less need be the fear of objectionable legislation.

Assuredly, it is high time for physicians to make this problem their most serious consideration for society is learning rapidly that the sound, active, vigorous and harmonious development of its individuals, so that they may carry on their economic burdens satisfactorily and serve efficiently the communities in which they live, is its greatest need in order to assure its safety and progress. Furthermore, society is beginning to realize that the main approach to this ideal is the physical examination. As a witness to the truth of this insertion, let us once more refer to the New York Life Extension Institute.*

Already references have been made to the activities of this agency. Its growth has been phenomenal and the services it has rendered to approximately one-quarter of a million of people along the lines of physical efficiency are of inestimable value.

It was organized in 1913. Mr. Harold A. Ley of Springfield, Massachusetts and Professor Irving Fisher of Yale were the prime movers in organizing the Institute. Ex-president Taft was elected Chairman of the Board of Directors and a Hygiene Reference Board of 100 leading scientists and educationalists in the United States was formed under the chairmanship of Professor Fisher. Dr. Eugene Lyman Fisk was appointed medical director.

The aims and objects of the organizers of the Institute are summarized as follows:

(1) To direct the efforts of the Institute, not only to the prevention of disease, but to its early discovery. Therefore, periodic health examinations are urged to the end that health and life may be conserved, and that the custom of having health examinations may be encouraged and eventually become a common practice among our people.

(2) To establish and maintain a central institute of national scope and purpose supported by a large board of recognized authorities in the various fields of health and life conservation fully equipped to render this service.

(3) To engage trained physicians throughout the country, and to establish laboratories for the purpose of carrying on physical examinations and research work. (In addition to its Head Office Staff, more than 6,000 examining physicians are now in the service of the institute in the different towns and cities throughout the United States and Canada.)

(4) To provide a responsible and authoritative source from which the public and the medical profession may draw knowledge and inspiration in the great war of civilization against needless sickness and premature death.

(5) To give special attention to the teaching of the rules of individual hygiene or healthful living by means of monthly Health Journals, popular lectures, scientific papers and addresses and books of instruction, to the end that not only the ravages of communicable disease may be stayed, but that the increasing waste of vitality and human life from the chronic diseases may be checked.

(6) To give consistent support and encouragement to the public health service, local, state and national.

It must be emphasized here that the purpose of the examination is to prevent disease and subnormalcy and to warn the examinee of imminent retrogressive processes when such are detected during the process of the examination. The institute does not provide treatment of any kind. Where medical or surgical treatment is found to be essential, the examinee is referred to competent physicians or surgeons, preferably to the family physician. "It is interesting to note that on conservative basis of estimate, the Institute has referred its examinees to their family physicians for medical treatment which, at an average rate of medical charge, would represent fees amounting to between five and ten millions of dollars." The Institute does not practice medicine.

From 3,000 to 5,000 people are examined each month. The annual total examined amounts to approximately 30,000 men and 15,000 women. Any one may subscribe to the Standard Health Service for $20.00. This service includes (1) a thorough physical examination including blood and urine; (2) a study and comparison of the physical findings by the Institute's Reviewing Staff; (3) detailed report of the findings of the physical examination with suggestions and advice to the examinee with particular reference to correcting any impairment or disability; (4) standard weight chart and counsel covering weight; (5) mid-year seview by means of questionnaire; (6) educational health literature.

Special services are provided such as neuropsychiatric, heart, etc., for which additional fees are charged. Thirty physicians make up the medical staff and one hundred and twenty technicians are employed. A consulting staff is maintained. Not only do individuals come in of their own free accord but the Institute is now employed by seven insurance companies who offer the physical examinations to their policy holders. Already we have referred to the cash savings of one of these companies—The Metropolitan Insurance Company, by having a certain group of their policy holders examined and advised.

According to the balance sheet of the institute for the year 1921, the net operating profits were $17,265, and the total earnings were $448,007.85. All profits have been utilized for expansion and for health education. It is contemplated in the future to utilize profits to support health activities in certain universities. No dividends have been declared.

All of these details are interesting, no doubt, to the physician. The amazing thing is the rapid growth and the extensive activities of an agency concerned with the promotion of health through the physical examination and its accompanying health education. Assuredly this experiment on the part of one life saving agency indicates the growing interest on the part of people in matters pertaining to health and personal efficiency.

The success of this institute suggests that the future will see many similar scientific health in-

*The New York Life Extension Institute is located at 25 West, 45th St., New York City. It has published many exceedingly interesting and valuable pamphlets along the lines of human conservation. Doubtless many of these are available to physicians.

stitutes in the United States. Some are even now in the process of germination. It is not visionary to assume that the health examination institute in the future will become as popular and noteworthy in every respect as are certain clinics, at the present moment, that are devoted to curative medicine.

Assuredly, the "positive health and physical efficiency" clinics or institute offers a specialty to the on-coming physician, and with the ideal co-operation with scientific curative medical practice, the work of these clinics are going to be of inestimable value to mankind.

The Life Extension Institute suggests one method of organization and operation when it comes to voluntary pay patients. But, obviously, that which is going to concern the physician more than the pay examinee is naturally the "non-pay" or "little-pay" individual who applies for a physical examination. And as time goes on the objects of more or less charity will present themselves in increasing numbers for health examination, for the community will soon realize that its welfare is not safe and secure so long as disseminators of disease are loose in its midst and subnormalcy, which costs society so much to care for, is prevalent. Let us see what one community has done relative to the physical examinations of its individuals. That the community of the future will need and will demand physical examinations of all its members as a part of an intensive health program is suggested from the following experiments:

(1) Framingham Community Health and Tuberculosis Demonstration: Framingham, Massachusetts, was selected as the recipient of an intensive and extensive health demonstration with a view of determining just how healthy a community may be made through proper co-operation and concentrated effectual application of the things worth while in public health work. The Metropolitan Life Insurance Co., realizing the values of such activities, donated $100,000 for this intensive community health survey. The work was started in December, 1916. Space will not permit of a review of the various health activities conducted by the committee in charge.* We shall limit our comments to the physical examination activities.

It was considered that the medical examination work was of prime importance for the following reasons.

(1) As a measure for obtaining an accurate cross section picture of illness in a supposedly normal group, with special reference of course to tuberculosis.

(2) As a measure for obtaining an accurate figure on actual illness for comparison with health census findings regarding admitted or recognized illness, thereby furnishing a basis for a possible relative index.

(3) As a means of securing figures regarding illness prevalence at the beginning of the Demonstration, for comparison with similar data at the end of the Demonstration.

(4) As a practical means for discovering tuberculosis.**

This interesting monograph discusses the procedure—preliminary steps, publicity, canvassing families, examinations, special examination days, follow-up work, statistical tabulations and records, staff, and gives the results and conclusions. The number of examinations made in two drives were 4,473. The campaign was put on much like a Red Cross drive or a liberty bond sale. The city was organized into wards and then into small units until every family was solicited. Of course, the examinations were voluntary. Space will not permit us to insert the interesting tables and analyses of the defects and illness found among various age groups. The monograph should be studied by all interested in the physical examination aspects of public health. The points germane to this discussion are found in the following conclusions:

"It is clear that the most economic and satisfactory method of carrying out examination work on a large scale is to have the examinations made in the home. Presumably this conclusion may be somewhat subject to modification when one considers the adaptability of the plan to larger cities.

"Looked at from the point of view of the per capita cost, this type of medical examination work does not appear to be inordinately expensive. The average per capita cost was $1.84. Seventy-two physicians were employed in the first drive and twenty, in the second drive. While few physicians contributed their service, most of them were compensated at the rate of five or ten dollars a session. The physicians were amply assisted by nurses, recorders, etc."

The Framingham experiment is inserted here with a view of showing what can be done by a community in putting on an intensive physical examination week campaign, by availing itself of the services of all those interested. More than one-half of the families of Framingham were reached and the cost of these examinations, per capita, was surprisingly low.

(2) Mansfield Child Health Demonstration:* Several nation-wide voluntary health organizations, namely: American Child Hygiene Association, American Red Cross, National Child Labor Association, National Organization for Public Health Nursing, National Tuberculosis Association, selected Mansfield, Ohio, as the most ideal city to carry on an intensive health campaign with particular reference to child conservation. Naturally as child hygiene is inextricably interdigitated with all other phases of public health, the entire field of public health must be covered. An appropriation of $200,000 was made by these associations. This sum will be augmented by community support. The experiment is to be conducted for a period of five years. Again we must omit consideration of the general activities of this demonstration. Already thousands of examinations, particularly of school children have been made. The routine physical examinations of school children are conducted by co-operative efforts. Volunteers from the Parent-Teachers Association do the clerical work. Nurses do the posture, hearing, eye and preliminary nose and throat examinations. The school teachers take the height-weight measurements. This is followed by a mouth examination by dentists. Finally the child is passed on to the physiprocess is a marvel of efficiency and economy and cian who completes the examination. The whole tratedprocess is a marvel of efficiency and economy and shows what can be done through intelligent co-operation.

(3) Arlington County Virginia Health Demonstration: This is being conducted now in co-operation with the United States Public Health Service.* An intensive health campaign is being conducted along the personal, environmental and educational phases of rural health work. Particular attention is being paid to infant welfare and to school hygiene. The county physicians are co-operating in every respect in helping to conduct the various baby clinics now

*Nine Monograms (Framingham Monographs Nos. 1 to 9) covering the various phases of this demonstration have been published. These should prove to be invaluable to all interested in public health. Information regarding these monographs may be obtained from the Community Health Station, Framingham, Mass.

**Framingham Monograph No. 4, II Medical Examination Campaigns, p. 5.

*See Nations Health, Sept. 1922.

*Information regarding this demonstration may doubtless be obtained from the Surgeon General, United States Public Health Service, Washington, D. C.

being held in permanent quarters. Likewise, this co-operation exists freely with the public school examinations.

It has not been my purpose to describe in any detail the various interests and activities of these intensive demonstrations along the lines of community health. We only want to point out that the physical examination and diagnosis involving the services of physicians have been among the chief interests and activities of these demonstrations. There are many more of these community health demonstrations, in which physical examination is the most important activity, going on in various parts of the country. The Sheppard-Towner Law is stimulating, to a very high degree, this type of health work. All these health demonstrations through their wholesome efforts on the community and through education of the masses are contributing to a wide-spread movement on the part of society to protect itself and to heal itself through the instrumentalities of the physical examination. There is danger that this movement will engulf the medical profession before it is prepared to direct its course.

We must remember that the so termed Standard Bill prepared by the American Association for Labor Legislation and modelled after the Compulsory Health Insurance Law of Great Britain has been introduced into the legislatures of New York, Massachusetts, and New Jersey. The Nicoll Bill introduced in the New York state legislature, 1918, and the Davenport Bill introduced in the legislature of the same state, 1920, are modifications of the Standard Compulsory Health Insurance Bill. Twelve state legislatures have already considered similar bills.

Physicians in general are familiar with the objectionable features of compulsory health insurance. Passed experience with health insurance in other countries demonstrates beyond doubt that it leads to malingering, invalidism, and fraudulent practices on the part of the people concerned. Compulsory health insurance does not promote interest in positive health and physical efficiency and disease prevention which are the prime objectives of public health. People so insured, as a rule, are infinitely more concerned with the cash benefits to be derived. Furthermore, all forms of compulsory health insurance tend to demoralize the medical profession. The panel system puts a premium on superficiality and on careless and unskilled medical practice.

It seems imperative, therefore, that the physicians take serious cognizance of this "trend of our times" towards community health problems. By virtue of his training and of his profession, the physician is the chief individual to be involved. The medical profession must earnestly seek for the solution. It must direct this movement on the part of society to attain and maintain positive health.

As a suggestion for discussion before medical societies relative to relationships of the physician to public health in its newer aspects, let us quote here from one of our ablest of state health commissioners—Dr. Rankin of North Carolina.*

Dr. Rankin's plan: In a recent paper he calls the attention of the medical profession to the unoccupied field of medicine—to wit, approximately 750,000 births a year in the United States unattended by physicians, the appalling number of children with defects and disease whom physicians never see, the extensive prevalence of venereal disease—perhaps not more than 40% treated by the profession, and so on. The following is Dr. Rankin's recommendation for supplying the increased demands that are to be made on the medical profession in the future:

"As organization of the local unit of the profession, that is, the county medical society, is necessary to increase the demand for medical science and enlarge the field of medicine, so, too, the organization of the county medical society for the purpose of supplying the increased demand will be necessary. I shall touch only briefly on this phase of the subject.

"The primary demand will be for examinations and diagnosis. The educational work above outlined will cause hundreds and thousands of those who become interested in the matter of health to wish to know whether they have an incipient or unrecognized disease or impairment, or whether, by alterations in living habits, their health may be promoted to a higher level. A secondary demand that will arise in consequence of such physical examination will be a more extensive demand for treatment.

"In providing for these two demands, more adequate diagnosis and more adequate treatment through organized effort, it will be found that the plan of organization will involve both the local profession and the public, and will embrace both professional and business considerations—the former relating to the profession, the latter to the public. The two organizations, profession and public, and the two main considerations, professional and business, will merge and find their proper relation in a public county clinic, run and manned by the profession and financed by the community.

"In considering the professional organization of such a clinic in an average county of twenty-five practicing physicians, a service of four hours a week for each physician would provide 100 hours of professional service every week for the county. Such a public clinic could operate two afternoons, for four hours each, every week, with twelve physicians in attendance; or four afternoons, for two hours each, with ten physicians in attendance; or four afternoons, for three hours each, with eight physicians in attendance. However, the number of hours served by the combined county medical society, and their arrangement of one day, or one afternoon, or several afternoons, and in groups of four, six, eight, or ten physicians, are details for the consideration of the local county society. With 100 hours a week, and with physicians working in groups as they did in examining the drafted men during the war, from 100 to 150 people a week, from 400 to 600 a month, from 5,000 to 7,000 a year could be examined.

"As a result of these examinations, a greatly increased demand for medical treatment will inevitably arise. Those needing and seeking treatment may be classified into those who can pay and those who cannot pay. The first class would be referred by the clinic to their family physician. In considering the second class, those who cannot pay, the charity practice of the county, we come to the business considerations involved in this organized effort to meet the increased demand for medical science.

"In dealing with the business elements which enter into this problem, it will be well to observe, at the outset, that the burden of charity practice, constituting from 20 to 40 per cent of practice, should not rest on twenty-five citizens of the county; that is, on the twenty-five practicing physicians; but it is a burden which should be distributed and which should rest on the entire citizenship of the county, its 30,000 people. All treatment administered in the clinic to the needy should be paid for by the public, and the funds paid in divided among the physicians serving the clinic, according to details to be worked out jointly by the county medical society and the group representing the public.

"In securing funds for such a clinic, the following possible sources are to be considered: (1) a nominal charge against all who apply for clinic benefits; (2) local Red Cross chapter funds; (3) local funds received through the sale of Christmas seals; (4) appropriations by the city or town authorities; (5) appropriations by the county authorities; (6) an annual church collection from the churches of the county in response to the commission "heal the sick" and (7) contributions from benevolent and financially able citizens of the county. With the educational work on which all this is predicated, the necessary revenue to maintain a public clinic would be assured.

"A business organization of interested, broad-visioned, public-spirited men and women should be effected, in order to organize the people of the county around the clinic. Such a lay organization would assume two definite tasks: (1) arranging for the places and notices for public addresses by the physicians, and (2) securing funds with which to finance the clinic.

"The local medical society would work out with this group of business men, and define on paper, the conditions under which the business group, representing the community, would issue cards of admission and requisitions for treatment to those who applied. In the whole scheme, the local society, through organized effort, would assume the initiative, and approve everything that was done in providing for both the increased demand with respect to diagnosis and the increased demand for treatment.

*The Mutual Interest of the Profession and the Public. Journal A. M. A., July 22, 1922, p. 281.

"The profession at present is extensively and intensively interested in the development of public hospital facilities. This is a worthy interest, and should be encouraged in every way. But the hospital is something that will come only when the local county people have been informed through educational methods as to the prevalence and meaning of disease and impairment; and when they have demonstrated, through a public clinic, what can be done through organized effort in the treatment of disease and impairment. In short, public organization to care for disease and impairment in an adequate way will follow and never precede professional organization. We shall have organization and co-operation without when we have organization and co-operation within."

Since the completion of this paper, we have received the following information:*

"The Commonwealth Fund has decided to finance a thorough child health program in three typical cities for a period of five years. The general qualifications of the first city to be selected are that it should be from 15,00 to 25,000 in population with an infant mortality of approximately 100 per 1,000 live births, or greater.

"The announcement of this action was made by Courtenay Dinwiddie, executive secretary of the committee which has been organized to direct the work. The program will comprise safe-guarding the health of the mother-to-be, laying a good health foundation for children in the early sensitive and formative period of their growth and health supervision and the formation of the essential health habits in school children.

"The responsibility for carrying out this comprehensive child health program is placed upon the American Child Hygiene Association and the Child Health Organization of America. The American Child Hygiene Association has been working for thirteen years with might and main to make life safe and development sound for mothers and young children. The Child Health Organization of America has made remarkable contributions in the field of health education of school children."

ADRENALIN

When the pressor principle of the suprarenal gland was first isolated it was called Adrenalin by the manufacturers who introduced it to the medical profession. The derivation of the word is obvious —from the adrenal (or suprarenal) glands. And for several years after the product was made available commercially, it was reported upon in the medical press, both here and abroad, as Adrenalin.

In fact the full momentum of clinical observation with reference to the various applications of the pressor or blood-pressure-raising principle of the suprarenal gland was provided by means of Adrenalin, the Parke, Davis & Co. product. This fact is of some significance, even now, for two reasons: First, Adrenalin has always been standardized, we understand, by the blood-pressure method; second, all products of this class are subject to molecular changes which have a bearing on their activity, and long experience in manufacture has doubtless revealed not only the danger, but also how to avoid it.

Adrenalin blanches the inflamed conjunctiva when applied in a dilution of 1 to 10,000; the blood-pressure of anesthetized dogs is materially increased by the intravenous administration of less than one six-thousandth of a grain. This phenomenally powerful drug is applied topically in solution to mucous membrane in non-infective inflammations of all kinds, including hay fever, administered subcutaneously in bronchial asthma, urticaria, serum anaphylaxis, and certain forms of hemorrhage, and given by vein in shock and collapse. The heart that has ceased beating has been known to respond to the direct application of Adrenalin.

Parke, Davis & Co., offer a booklet on Adrenalin to interested physicians.

*American Physical Education Review, p. 434.

CANCER IN MICHIGAN AND ELSEWHERE

The cancer problem is a serious one in Michigan. Cancer ranked third in this state as a cause of death in 1921, and was exceeded only by apoplexy and heart disease. he cancer death rate for that year was the highest in the history of the state the year of 1921, 3,304 people died from cancer (a death rate of 86.5). Cancer is not confined to any particular portion of the state nor is it by any means confined to the city as against the country. In 1921, there were 1,381 deaths from cancer in strictly rural districts and villages of less than 2,500 population (equivalent to a death rate of 95.4 per 100,000 population) whereas in the cities of 2,500 population or over there occurred 1,923 deaths (equivalent to a rate of 81.1 per 100,000.) The greater opportunity for medical consultation and advice offered in the cities might account for this difference. Every county in the state had some deaths from cancer although three of the counties (Crawford, Oscoda and Gladwin) had only one death each from this cause in 1921.

Vermont, Maine, New Hampshire, Massachusetts and California had the highest rates in the United States from 1911 to 1921. The states in the immediate vicinity of Michigan (New York, Indiana, Wisconsin, Ohio, and Minnesota) all showed higher rates than Michigan. The cancer death rate in this state has advanced continuously from 1901 to the present time. This increase is not as great as it would seem as better methods of diagnosis and more careful statements of causes of death on death certificates undoubtedly represent some portion of this increase.—(W. J. V. Deacon, M. D., Mich. Public Health Bulletin, Nov. 1922.)

MULTIPLE SCLEROSIS

Multiple Sclerosis—If multiple sclorsis is a disease entity due to a single cause that acts in early life, it may be due to some specific infection but the evidence available is strongly against its being caused by any of our well known infections, by any ordinary intoxication (organic or inorganic), or by electrical thermal or traumatic influences. If the exogenous factors mentioned play any role at all in the etiology of the disease, they must act either as predisposing influences for the true cause or as aggravators of a disease already started by the true cause—(Lewellys F. Barker, M. D., Archives of Neurology and Psychiatry, July, 1922.)

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JANUARY, 1923

Report Malpractice Threats Immediately to Doctor F. B. Tibbals, 1212 Kresge Bldg., Detroit, Mich.

Editorials

ANNUAL MEETING OF THE COUNCIL

The regular mid-winter annual meeting of the Council, will be held in the Michigan-Union, Ann Arbor on January 16 and 17, 1923, for the transaction of such business as may properly come before the Council.

The first session will be held at 6 P. M., on January 16. The second session at 9 A. M., January 17.

The Council will meet in joint session with the Joint Committee on Public Health Education on January 16 at noon, in the Michigan-Union.

A. L. SEELEY, Chairman.
F. C. WARNSHUIS, Secretary.

OUR RELATIONSHIP TO THE COMMUNITY

The above heading is suggested to us by an incident that has occurred in Grand Rapids and in which the doctors of Grand Rapids came to the front in a manner most commendable. But let us tell the story—necessarily it must be abbreviated.

A new hospital was needed in Grand Rapids. It's cost is one and a quarter million dollars. One generous donor gave seven hundred and fifty thousand dollars, leaving a balance of five hundred thousand to be raised by the public. A public campaign was organized. The campaign extended over one week. At the beginning of the campaign the staff of the hospital underwrote a subscription of $30,000. A special meeting of the Kent County Medical Society was called. Plans were so developed that the doctors outside of the staff contributed $12,707, making a total of $42,707 or almost one-tenth of the total amount, subscribed by the medical profession of Kent County, composed of 198 doctors. The campaign fund asked was oversubscribed—$674,945 was the total subscription.

At the preliminary publicity meetings the public criticism was centered on one large objection: "Why should we contribute to build a workshop for the doctors?" Foolish and ignorant was such objection we know. What was done was that the public was educated and enlightened as to the work done by hospitals, methods of service, expense involved and the time that is daily contributed by doctors without renumeration. They were shown the community need for a hospital and how scientific medicine can save lives in properly equipped institutions, etc., and to this there was added the $42,000 in subscriptions by the doctors themselves.

The result, the objectors were subdued and the fund was oversubscribed by $174,945. That is the story in brief. The lessons gained are as follows:

First, the public gained a much needed insight as to administration of hospitals. They became interested in the problem and that interest is bound to grow through the years for the good of the hospitals of Grand Rapids.

Second, the medical profession demonstrated that it recognized its community responsibility and community association by coming forth with a magnificent financial subscription. This was recognized by the public and many were the compliments that were handed the profession. This action has raised the profession a thousand-fold in the eyes of the public and has gone far to wipe out the growing charges of commercialism and selfishness.

Third, it cemented the medical fraternity and has gone far to unite them for work for the good of the public and for themselves.

Fourth, it has demonstrated that we can

obtain the confidence and good will of the public in medical matters if we but mould our activities.

THE ADVANCEMENT OF MEDICINE IN DETROIT

We are very glad indeed to publish in this issue the address of the President of Wayne County Medical Society. In commenting thereon, we reprint the comment published in the Wayne County Bulletin.

Elsewhere appears the annual address of the retiring president of the Wayne County Medical Society. Dr. Davis has made some interesting and important comments on medicine in Detroit, which the medical profession here can ponder with profit. Detroit is the only city in the world with over half a million population which has not a complete university. This city has the reputation of contributing but very little to medical literature. The essayist goes on to institute a comparison between the number of autopsies performed in Detroit with those performed in other cities, the comparison being to Detroit's disadvantage. The figures given by Dr. Davis are interesting. Too much stress cannot be laid upon this feature of medical study and medical teaching, inasmuch as a well performed autopsy means a study at first hand of the end results of disease. New York, Chicago and Philadelphia have each four class A medical schools, while in Detroit we have only one without endowments and without adequate buildings. Only fifty-five out of two hundred and eighty-five qualified students could be admitted to the freshman class owing to the lack of capacity to handle them.

To return to the subject of post mortems, the speaker attributed the few autopsies done in Detroit to the fact that the public thought post mortems were done either through a morbid curiosity or confession of diagnostic failure. To remedy this, public education is needed. The aim should be to instill in the public mind that all autopsy work had for its ultimate aim the betterment of the condition of the living. Even the coroners' cases are not used at all to the advancement of the science of medicine. If careful autopsies were made of all coroners' cases we would have a good beginning for the first-hand study of gross pathology.

It cannot be denied that there is a strong demand for both graduate and under-graduate medical teaching here. The two hundred and eighty-five applicants for Detroit College of Medicine is sufficient proof of the under-graduate demand. The fact that Detroit doctors have gone so far as to hire an instructor from another city to give short special courses is evidence of the demand for post graduate work

We feel that Dr. Davis has stated the case very clearly. The next step when confronted with such an arraignment is to endeavor to explain things away. The prime requisite for post graduate work in any center is a full degree conferring university. It is significant that when the Mayos established the Mayo foundation they went nearly one hundred miles away to affiliate with the University of Minnesota. We know of no post graduate medical work that is not part and parcel of university teaching. It behooves us as medical men to create a public opinion favorable to the foundation of a university for Detroit with full degree granting prerogatives. This will relieve the congestion to a large extent with the University of Michigan as well as fill a vital need here in the metropolis of the state. J.. H. D.

We urge that our members read this admirable address. It applies to the state as well as to Wayne county. Advice, such as this, is not idle rambling. It is definite and to the point. As we conform to these recommendations, so will we enhance our individual and collective worth. We have idled far too long.

DETROIT POST-GRADUATE LECTURES

The Board of Trustees of the Woman's Hospital, of Detroit, wish to announce the third annual series of Post-Graduate Lectures.

These lectures are so arranged that they offer to the busy practitioner an excellent opportunity to keep in touch with the latest developments of medical science. The courses are open to any physician or medical student. The charge for the lectures, are $5.00 for each series, except anatomy and pathology, for which there is an additional charge.

The profession from neighboring cities or towns, in both Michigan and Ontario are especially urged to attend.

For further information address Dr. C. H. Judd, Woman's Hospital, Beaubien and Forest, Detroit.

A splendid course has been made available. It should receive a large patronage.

THE BLODGETT GIFT

For the information of our members we reprint the following from the Wayne County Bulletin:

It was with feelings of profound gratitude and the utmost pleasure that the Council of the Wayne County Medical Society and the Board

of Trustees accepted the most generous offer of Dr. Wm. E. Blodgett in establishing a new Orthopedic foundation. This gift marks a distinct period in the history of the Society, the writer believes it to be epochal. It can have but one result, namely the stimulation of other generous souls in a similar generous fashion.

With characteristic modesty the donor has declined to attach his name to the gift, preferring to use the term of the Detroit Orthopedic Lecture or Detroit Orthopedic Foundation. This is a course to be generally commended, inasmuch as the association of the names of living donors with gifts of this kind, might readily become wearisome, and result in innumerable complexities.

The Wayne County Medical Society is now the happy possessor of two annual lectureships namely the Beaumont and the Detroit Orthopedic. So far as known, it is the only city of any size in the United States which is the proud possessor of so many lectureships. It is to be presumed that some worthy soul with generous instincts will be called upon by his conscience or by his goodness of heart, to build a third foundation along some other scientific lines.

This may be an appropriate point in which to stress the necessity for liberal gifts for our new library. It is not generally known, and yet the fact should receive wide circulation, that our library at present is in somewhat urgent straits. We have the nucleus of a wonderfully fine library, but we have practically reached an impasse. Practically no new books are being added to our shelves, and the only accretions are gifts from deceased members or from their families. These gifts are of necessity usually many outworn volumes, and while they have some value, yet they do not represent either up-to-date volumes nor volumes old enough to have an historical interest. The upkeep of the library is moreover in somewhat uncertain conditions and with the additional burden of building an adequate club-house for the Society the trustees will undoubtedly find the burden almost more than they can bear in the necessities arising for the support and maintenance of a library suitable to the dignity and standing of the Wayne County Medical Society. An appeal is therefore made to all the generous and able members of the Society to give the library serious consideration in their gifts, bequests and wills.

The wonderfully fine gift of Dr. Blodgett is, in the writer's estimation, susceptible of but one effect, and that is, the stimulation of others to go and do likewise.

W. M. Donald, Pres. W. C. M. S.

COMMUNICATION

November 20, 1922.

Dr. William M. Donald,
President, The Wayne County Medical Society, Detroit, Mich.

My dear Doctor Donald:

Desiring to foster orthopedic surgery at large and in our midst, and responding to my feeling of obligation to my professional brothers, by whose confidence and support my work, the sole source of my income, is made possible, I hereby give to the Wayne County Medical Society the sum of Five Thousand Dollars, to be held in trust by the Board of Trustees as a permanent investment for the establishment of an Orthopedic Lectureship.

The lecture is to be delivered annually under the auspices of the Wayne County Medical Society, by a man, not necessarily an orthopedic surgeon, chosen by the Council of the Society as the most distinguished and fitting for the purpose. The selection is to be made at least four months in advance of the lecture. The lecturer is to choose the subject, cognate to orthopedic surgery and of broad importance.

Not less than three-fifths of the proceeds of the fund is to be paid the lecturer for his services, and the balance is to be used for the publication of the lecture in booklet form with hard covers, and for the free distribution of same, two copies to be given the Wayne County Medical Society Library, two to the lecturer, and of the balance one each to such societies, libraries and individuals as shall be selected by the Council as most appropriate, according to the number which the fund can purchase. Additional copies may be made and offered for sale at cost but without obligation to the fund. The lecture, a copy of which is always to be furnished the Society by the lecturer at the time of the lecture, is to be offered for publication to the Journal of the Michigan State Medical Society. The publication, either in booklet form or in the Journal, is not to interfere with any later use that the lecturer may desire to make of the lecture.

The lecture is to be named and known as the Detroit Orthopedic Lecture.

The Wayne County Medical Society is authorized to make at its discretion any change in the details of these provisions.

Respectfully yours,

Wm. E. Blodgett.

We congratulate Dr. Blodgett because of this splendid contribution to the profession. We are pleased to see such an exhibition of unselfishness tendered for the good of his fellow workers.

The Journal will gladly feature the addresses thus delivered and make available in suitable

form, reprints for further distribution. Are there not others who will follow and make similar contributions?

HYGEIA—A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

Announcement is made that Hygeia—the lay publication that will be published and issued by the American Medical Association will be issued in April.

For years the medical profession has realized the need for a periodical which will express to the public the ideals and the spirit of scientific medicine; which will inform the layman regarding progress in medical science; which will enlighten the intelligent reader as to the actual knowledge available regarding diseases and their prevention, and which will disseminate information concerning the propagation and preservation of health. To meet this need, the American Medical Association now offers this publication.

To our members the next eight issues will be sent for $1.00. Regular subscription price will be $3.00 per year.

Doctor, this is a publication that demands your support. It should be on the reception table of every doctor. Send in your subscription now.

WAYNE COUNTY MEMBERSHIP CAMPAIGN

The following outlines the plan and policy in the campaign conducted by the Wayne County Medical Society. We urge that other county officials give it their careful thought. We also recommend that some such plan be adopted by every county and that during the next two months an effort be made to secure every eligible physician as member of a county and the state society.

Detroit with its immediate environs was divided into 12 districts each in charge of a district chairman.

Each district chairman appointed a sub-committee of 6 members who were placed strategically throughout their respective districts.

This divided the city into approximately 90 sections each covered by a member of the committee.

The 22 Hospitals, Department of Health and College of Physicians and Surgeons were cared for by special committees of from 1 to 3 members according to the size and requirements of the institutions.

Placards bearing the words "Let's make every eligible doctor a member" and "Do your duty"—"Get a member" were placed in the cloak rooms, clinics and entrances to the operating rooms of all the hospitals.

The 6 office buildings had separate committees of from 1 to 4 members directing the campaign among the physicians of the building.

Wayne County (exclusive of Detroit) was divided into 16 districts and a committee of one placed in charge of each district.

The names of all eligible non-members were then distributed among the district chairmen who in turn gave them to the members of their sub-committee.

The same course was followed in regard to the hospitals and office buildings.

An alphabetical list of all eligible non-members was posted in the Council room of the Wayne County Medical Society and the Society as a whole was requested to assist in the campaign.

The membership committee held weekly meetings to determine the course of the campaign.

Mass meetings of all membership workers were called at which time they were addressed by leading members of the Society.

The chairman representing the 16 districts of the county (exclusive of Detroit) were also called into consultation by the chairman of the membership committee.

Up to the present time 125 applications have been received, 90 of whom have been voted into membership.

The campaign is to be continued until every eligible physicians is brought into membership.

Respectfully,

Dr. J. Albert Kimzey,
Chairman Membership Committee.

REPORT OF THE COMMITTEE ON NURSES

To the Council of the Wayne County Medical Society, Detroit, Michigan.

In response to your request, and to the letter of the President of the Michigan State Medical Society, that action be taken by the Committee on Nurses of the Wayne County Medical Society, in regard to the proposed inauguration of a new department of the University of Michigan for training nurses independent of the Medical School; governed by a dean and equipped with a faculty of its own, independent and distinct from the Medical Faculty of the University, your committee has met in several conferences.

Our sources of information on the proposed plan are varied. We have the statement of our State Society President published in the State Journal, to the effect that publication of the plan and of the arguments in support of the plan by the proponents of same had been refused. We assume that the question for consideration is this: "Should there be established at the University Hospital a school of nursing education, associates, instructors, executives, etc., as recommended in the report (designated the Winslow report) of the Committee on nursing

education financed by the Rockefeller Foundation?"

After a thorough perusal and discussion of the report of the Winslow Committee, your committee unreservedly indorses the statement of Dr. W. T. Dodge, President of the Michigan State Medical Society, as published in the November issue of the Journal and your committee approves the action taken by the Committee representing the State Society at a conference held at Ann Arbor, September 20, 1922, and we concur in the sentiments therein expressed—namely:

1. "That we oppose and respectfully request that no further effort be made to institute such a training school in our University.

2. That any plan suggested that alters or modifies the methods used in the University Hospital in its executive or administrative methods, or that effects the University Hospital Training School for Nurses, shall before presentation to the Board of Regents be submitted for consideration and expression of opinion to the faculty of the medical school.

3. That the University Hospital be placed under the supervision and direction of the Dean and Executive Committee of the Medical School. That the Director be obligated to report to the Dean.

4. That the University join with the State Medical Society in an effort to influence the Board of Registration of Nurses to so modify its examinations as to eliminate technical questions that should properly be propounded only to graduates in medicine."

(J. M. S. M. S., Nov., 1922.)

It is our opinion, further: That the resolution presented and adopted at the aforesaid conference, to be transmitted to the Board of Regents through President Burton, is so complete that it should be given emphasis here, i. e.:

"It is the well considered opinion of this meeting that the creation at the University of Michigan of a School of Nursing under a faculty separate from the Medical Faculty and from the administration of the Hospital would be very unwise. We are convinced that nursing is most intimately connected with the practice of medicine and that any step which tends to separate it from the practice of medicine will be harmful to the interests of the community. It cannot be doubted that the responsibility for the selection and for the work of nurses lies and must lie with physicians, who must therefore be importantly concerned with their education. The separation of the training school from the hospital and the medical staff would make such responsibility impossible and would result in chaos.

We are further of the opinion that the present very unusual arrangement at the University Hospital by which the training school for nurses is wholly under the control of the administrative officer of the hospital is unsound in theory and dangerous in practice. We believe that the training school for nurses should be directed either by the Medical Faculty or by a committee appointed by it."

(J. M. S. M. S., Nov., 1922.)

Respectfully submitted,

Committee on Nurses.
HENRY L. ULBRICH, Chairman.
JOHN NEARY.
J. W. CUNNINGHAM.
JOHN GLEASON.
F. CHADWICK.

Editorial Comments

Have handy "Nostrums and Quackery" published by the American Medical Association. Pick it up in your idle moments and read it. It is more interesting and at times more amusing than any page of comics. At the same time you will be getting wise to the grafters. Along with it secure new and non-official remedies. Get wise, Doctor, to this drug game and don't be the salesman or manufacturer's dupe.

The next annual meeting of the American Medical Association will be held in San Francisco on June 25 to 29. Some delightful trips and tours are being planned for this meeting. Make your hotel reservations early.

If your Society has not taken action and forwarded its resolutions to the Regents regarding the University Hospital and Nurses Training School, do so, without fail, this month. It is important that your society goes on record.

Well, we are off on a new year. It is somewhat startling to note the rapidity that characterizes the passage of the months. It seems only a week since we collected the last five syndicates of a foursome. Now, the curlers are busy and tomorrow we will be shouting "fore." In the meantime what are you doing in the way of identifying yourself with the activities of your county society? There is profit, pleasure and sport in engaging in its programs, plans and work. This year should witness the greatest activity your local society has ever experienced. The record is dependent entirely upon whether you are going to be a booster or a passive spectator.

When a writer for a popular magazine sums up his argument in the paragraph quoted below, it is high time that members of the medical profession take heed.

"Many doctors refuse to listen to the warnings and advice of men who are in a position to know, and who really have the welfare of both the public and the doctors at heart. If the profession does not wash its own dirty linen, the disagreeable duty will have to be done by others? If the doctors insist on being fooled, some power will arise that will make it more difficult to be fooled. If they continue to follow the siren voice of the drug mongers, and use nostrums that may actually endanger lives, some method must be devised to keep such tools out of their hands. The many doctors who shoot their patients indiscriminately with these products do so out of ignorance and commercialism. After all, the only value they know to exist for the injection is the five dollars a dose that they will get on the first of the following month."

Writers, who know and who have secured authentic information, are enlightening the public. They are lifting the curtain. You, doctor, may be getting away with it for a time but ere long you will stand alone before the bar of public opinion and be found guilty. You cannot plead ignorance, for if you do, there will be an added indictment of being too lazy to find out the scientific facts. These facts are available.

The American Medical Association has published a book entitled USEFUL DRUGS. Here you may secure authoritative information in regard to the many drugs, preparations and vaccines that are on the market and what, if any, therpeutic value they possess. If doctors would obtain these publications and read them they will not fall for the claims of the manufacturer—unless they willfully determine to become charlatans. We repeat, as we have done many times—Ask the salesman if his preparation has been passed by the Council of Pharmacy. If not, no matter what he may say, have nothing to do with the article. The Council of Pharmacy will

be roundly abused by the salesman of valueless preparations. The greater the abuse, the less merit will his remedy possess. Doctor, for the love of heaven, stop being the easy mark and cut out "shooting" and doping your patients with valueless drugs. Get wise before you are shown up."

Atlas and map publishers locate the great American desert somewhere in the west. Observers are somewhat becoming inclined to the opinion that the great American desert is in reality located under the hat of the American public. At any rate so it seems when we review passing events. When it comes to doctors and their interest in organizational affairs and their relationship to the public we are somewhat inclined to the opinion that under the hat of many a doctor there is a vast, vacant, barren desert. Will someone please open the irrigation gates?

The wide-spread use of the radio has developed so rapidly that it is still difficult to realize all of its wonders or possibilities. The other night, while attending a county society in a sparsely settled part of the state and noting the conditions that existed we were impressed with the difficulties that surround the doctors practicing in such localities. While returning on the train we pondered upon the subject and the following thought occurred. A good radio, with a range of 500 miles can be erected for $100. What a splendid thing it would be if some of our larger medical centers would construct a broadcasting station and then at pre-announced dates broadcast a course of talks and clinical lectures. This would enable many doctors to receive a continued course of post-graduate lectures, instruction and discussions during the winter months. Such a plan would be of wonderful assistance to these doctors who are prevented from attending medical meetings and clinical meetings in medical centers. We prophesy that such a course will be provided within a few years.

It is stated that the average woman has a stock of about 800 words in her vocabulary. Someone remarked that she gives wonderful exhibitions of frequent stock turn-overs.

Our advertisers have been loyal supporters of our publication. They will continue to be so as long as we cause them to receive a just return upon the money they thus invest with us. When that return is not forthcoming we may expect a discontinuance of this advertising revenue. When that occurs there will be but two alternatives—one, to discontinue our publication, or, to increase our dues so as to make up for the loss of advertising revenue. Our advertisers are all reputable firms or individuals. Their products are standard and represent just values. Doctor, they merit and are entitled to your patronage and preference should be given to them. All things being equal place your order with our advertisers. Do not let a smooth talking salesman of outside firms inveigle you to give him an order when you can buy just as cheap and just as well from those who support your publication. We request that you exhibit this loyalty to your patrons and thereby make it possible to continue our Journal without increased cost to you. Turn to the advertising sections and become more fully acquainted with your friends and then enter into business relations with them. We need this assistance and support from you. May we have it?

The meeting of the Ohio-Michigan Section of the American College of Surgeons that was held in Cincinnati of Dec. 8 and 9 was arranged without any consultation or conference with the Fellows of this state. Somebody evidently gumed the machinery for many did not receive the program until the day before the meeting. This accounts for so small an attendance of Michigan surgeons. This inconsiderate action is deeply regretted and it is to be hoped that the experience will not be repeated.

The Council on Medical Education and Hospitals of the American Medical Association conducted an extensive survey of the dispensaries, out-patient departments, clinics and other medical institutions having to do with the care and treatment of ambulatory patients. This survey is now available in printed phamphlet form. Some of the figures are interesting. There are 529 tuberculosis clinics with a total of 279,476 patients and 1,082,694 visits. Michigan has 31 such clinics of which nine are located in Detroit and one in Grand Rapids. We take it that the clinics conducted by the State Department of Health are not included. Michigan is further credited with 30 general dispensaries, 25 venereal clinics, 14 Nervous and Mental clinics and 12 Federal clinics. A total of 112 public clinics. During the past year there were 119,140 patients cared for by these clinics. Just to be commercial let us say that the average medical service to each patient is $10, the doctors of this state, without remuneration, contributed $1,119,140 of professional services in the care of these patients. Can Compulsory Health Insurance Advocates and politicians obtain any comfort from this figure.

The Council makes the following observations upon this survey.

Some of the main facts that have been brought to light in connection with the survey are:

1. There is a steady increase in the number of patients seeking treatment in general dispensaries.
2. There has been an unprecedented increase since the war in the number of special clinics and dispensaries, such as those for tuberculosis, venereal disease, mental hygiene and child hygiene.
3. There is great need for individualized study and treatment of dispensary patients, to counteract what seems to be a prevailing tendency to routinization.
4. There is need of a closer bond between the out-patient service and the other service of hospitals, and this will be best met by having the hospital and the out-patient staffs identical and by having unified records.
5. In the matter of finances there is an increasing tendency to charge nominal fees, thereby placing part of the cost of an institution on the patient.
6. A general increase is noted in the use of social service workers to see that patients continue their treatment, and to investigate their social and financial status so as to prevent pauperizing.
7. The difficulty of securing satisfactory data is increased by the inadequacy of clinical and office record systems in a large number of institutions.
8. There is a great and increasing amount of educational work, especially the teaching of interns, medical students, graduates and pupil nurses.

We have received several inquiries regarding the representations made by a salesman who is canvassing physicians to sell stock in a proposed Physicians Indemity Company. We are not intimately familiar with the representations made.

In general we would state—that the need for such a new company does not exist. Ample and splendid protection is furnished by our Medico-legal Committee. If additional indemnifying features are desired the Ft. Wayne Medical Protective Company provides this at a very nominal premium and acts in close co-operation with our Medico-legal Commit-

tee. We can see no prospect for large or moderate dividends for stock-holders of such a new company. The promoters stand to obtain the greatest profits and benefits.

Our recommendation would be to invest your money in good bonds. The interest will pay your premiums and you will always have at your personal command your original investment. Do not be mislead by promotors luring statements. Do not pay more or send your money for benefits that are satisfactorily obtainable and call for no investment.

We have repeatedly drawn attention to the splendid protection afforded by our Medico-Legal Committee. Our records show that this committee has always provided our members with successful legal services and defense. The doctor's individual interest has never been better protected. Such protection would not be obtainable did we not have a Medico-legal Committee. No stock company can match this service. Do not become mislead by statements setting forth that you are poorly protected. You cannot purchase protection equal to that which our Medico-legal Committee provides for you.

HYGEIA, is the name by which the new lay publication, to be issued by our American Medical Association, will be known. Send in your subscription now. One dollar for eight issues. Dr. V. C. Vaughan, Sr., as chairman of the Council on Public Health, will editorially supervise the first issues.

It is a sad commentary upon the integrity of our profession when insurance corporations and business firms announce that they cannot depend upon the medical statements and certificates of doctors as to the physical condition or the extent of injuries and disability given in cases in which they are concerned or responsible. They state that it has become necessary for them to employ doctors, who they can trust and depend upon, to go and make individual examinations and report upon the actual condition of the individual. This has become necessary because of the statements made by attending doctors, which magnify the condition, exaggerate the injury and unwarrantedly increase the degree of disability. It is this violation of professional integrity that discredits us as a body in the public's opinion. It is time that we recognized our responsibility.

Correspondence

The Editor of the Journal of the Michigan State Medical Society:

I am endeavoring to make a complete study of the distribution of human actinomycosis in this country. The number of cases reported in the literature is surprisingly small, and I know that the disease is not so rare as is sometimes thought. I shall greatly appreciate hearing directly from any one who has had experience with this disease, and desire to know concerning case histories the following: age, sex, occupation, residence, state in which the disease was contracted, location of lesion, duration of symptoms, and any special points of interest connected with the treatment, outcome of the disease, or necropsy findings.

A. H. SANFORD, M. D.,
Mayo Clinic, Rochester, Minn.

The Editor of the Journal of the Michigan State Medical Society:

A Dermatologic Clinic will be held at Ann Arbor for and by the American Dermatological Association on June 7, 8 and 9, 1923. It is the desire of the Detroit Dermatological Society to present at this clinic as many rare and undiagnosed cases as possible and the request is made to all physicians having such case that they communicate with the committee as soon as convenient. This is necessary in order to make complete histories and examinations if indicated. It is hardly necessary to say that this could be of value to both the patient and physician. Provision will be made at the University Hospital for a few cases who may require such care during the clinic.

Kindly address communications to the committee.

C. C. TROXELL,
R. A. PERKINS,
R. C. JAMIESON, Chairman.

Deaths

Dr. George C. Bassett was born in Detroit in 1874. He graduated from the Detroit College of Medicine and spent a year in study in Vienna.

The death of Dr. W. S. Stevens, not a member of the Society has been reported.

State News Notes

COLLECTIONS

Physicians' Bills and Hospital Accounts collected anywhere in Michigan. H. C. VanAken, Lawyer, 309 Post Building, Battle Creek, Michigan. Reference any Bank in Battle Creek.

Dr. Carl Camp of Ann Arbor gave a talk on Lethargic Encephalitis," November 20, 1922, before the Wayne County Medical Society.

As a result of the study of cases presenting themselves at the Cancer Clinic at Grace Hospital, Detroit, during Cancer Week, the Cancer Committee of the hospital has decided to continue the Cancer Clinic as a permanent department of the regular clinic, every Saturday morning at 11 o'clock.

Dr. Henry R. Carstens of Detroit has recently accepted a commission as Lieutenant-Colonel in the Officers' Reserve Corps.

Dr. Dale M. King of Detroit was recently appointed Neurologist to the Michigan Central railroad.

Dr. Max Ballin was recently appointed a member of the Detroit Welfare Commission. He succeeds Dr. Wadsworth Warren who died Oct. 22, 1922.

John D. Rockefeller, Jr., has purchased the block bounded by Avenue A, 63rd St., 64th St., and East River at a price of about $1,000,000. It is understood that this land will eventually be used for additional buildings of the Rockefeller Institute for Medical Research which occupies the three adjoining blocks.

Dr. Russell D. Carman of the Mayo Clinic read a paper (illustrated with lantern slides) on "The Roentgenological Signs of Colonic Cancer" and Dr. A. J. Ochsner of Chicago, on "The Surgery of Cancer of the Colon," before a joint meeting of the Radiological Society of North America and the Wayne County Medical Society, December 5, 1922.

A delegation of seven from the Faculty of the University of Strassbourg arrived in New York

Sept. 30, 1922, as guests of the Rockefeller Foundation for the purpose of studying the organization and methods of American Medical Schools. After a brief stay in New York the commission will visit Johns Hopkins University, Harvard University, University of Pennsylvania, University of Michigan and Washington University, St. Louis.

The new director of the Illinois Department of Registration and Education, A. M. Shelton, asked for and received the resignation of the members of the 14 boards under the jurisdiction of this department. The following physicians have been appointed on the professorial committee: Doctors M. L. Harris, G. Fitzpatrick (reappointment), and A. H. Geiger of Chicago, Doctor L. C. Taylor (reappointment) of Springfield and Doctor W. H. Gilmore of Benton.

The Ohio and Michigan Sections of the American College of Surgeons met in Cincinnati, Dec. 8, 9, 1922. The Michigan Executive Committee was Dr. F. C. Warnshuis of Grand Rapids, chairman. Dr. R. C. Stone of Battle Creek, Secretary; Dr. W. R. Parker of Detroit, Counselor; Dr. J. G. R. Manwaring of Flint, Counselor, and Dr. C. E. Boys of Kalamazoo, Counselor. Dr. W. R. Parker of Detroit was chairman of the Scientific Meeting, held December 9, 1922.

The Seventh Annual Clinical Session of the American Congress on Internal Medicine will be held in Philadelphia, April 2-6, 1923.

The Butterworth Hospital staff of Grand Rapids, conducts a monthly clinical conference on the first Friday of each month. The doctors of Western Michigan are invited and urged to attend these conferences. The morning is devoted to surgery, the afternoon to the exhibition and discussion of clinical cases and the problems of diagnosis. A dinner is tendered to the doctors and one or two papers are presented after dinner. Last month Dr. J. S. Pritchard of Battle Creek gave a splendid talk on "Non-Tuberculous Lesions of the Lung." Judge C. L. Higbee gave a most interesting talk on the "Relationship of Doctors to the Probate Court." Dr. you are welcome to these meetings. If you desire to receive a program and notice before each meeting drop a card to the superintendent requesting him to put your name on the mailing list.

Have you paid your 1923 dues? Now is the time to send in your check to your local secretary.

The Detroit X-ray and Radium Society met Nov. 22, 1922. Dr. W. A. Evans talked about the recent meeting of the American Roentgen Ray Society held in Los Angeles. Each member then presented two cases which had come up in his practice in the past month.

Dr. J. M. Robb has returned to Detroit after spending a number of months in Europe.

The Academy of Surgery of Detroit met at Grace Hospital, Nov. 24, 1922. Doctors H. K. Shawan, G. P. Meyers, H. W. Hewitt, Charles Kennedy, R. J. Palmer and D. A. Darling took part in the meeting.

The Detroit Pediatric Society held a clinical meeting at the Children's Free Hospital, Nov. 23, 1922. Doctors G. E. White, W. C. Cole, M. B. Kay and E. R. Witwer presented cases.

Dr. W. R. Chittick left Detroit Dec. 2, 1922 to spend the winter in California.

Dr. Hugh Cabot of Ann Arbor spoke on "The Management of Small Calculi in Kidney and Ureter" at a meeting and banquet, given by the Medical Staff of the Geneva City Hospital, N. Y., November 9, 1922.

Dr. B. R. Shurly of Detroit was appointed, Nov. 1922, Colonel in the Medical Reserve Corps of the United States army.

There was a very large attendance at "The Feather Party," given by the entertainment committee of the Wayne County Medical Society, Nov. 27, 1922.

Dr. A. D. LaFerte read a paper on "The Management of the More Common Fractures," (illustrated with lantern slides), before the Detroit Academy of Medicine, Nov. 28, 1922.

We are glad to announce that Dr. Henry R. Varney of Detroit has resumed his practice, after an illness of a number of months.

Dr. C. B. Lundy was recently elected President of the Detroit Amateur Athletic Association.

The engagement of Dr. H. W. Plaggemeyer of Detroit to Miss Edith Greer of London, Ontario, was recently announced.

Miss Dorothy F. Wilson, daughter of Dr. and Mrs. Walter J. Wilson of Detroit, was married, Dec. 2, 1922, to Mr. Kenneth Draper of Detroit.

Dr. Harold Henderson of Detroit gave an address on "The Diagnosis and Treatment of Sterility in Women," before the Detroit East Side Physicians' Association, Nov. 16, 1922.

Dr. Guy L. Kiefer of Detroit talked on "The Acute Exanthemata," before the Detroit West Side Physicians' Association, Nov. 9, 1922.

At the regular meeting of the Council of the Wayne County Medical Society, held November 20, 1922, Dr. Eugene Smith, Sr., was made a Honorary Member of the Society.

Dr. Alvin Thompson of Chicago has recently moved to Flint and become affiliated with the Genesee County Medical Society. He is limiting his practice to Urology. He is a member of the Chicago Urological and American Urological Societies and was associated with Dr. R. H. Herbert while in Chicago.

Dr. Gordon Bahlman of Flint left on Dec. 9 on the "Homeric" for England. He will spend the winter months in the eye, ear, nose and throat clinics at Vienna.

Dr. Irving E. Sanders, whose certificate of registration was revoked by the Medical Board in 1910, was convicted in the Recorder's Court, Detroit, Aug. 16th last, for practicing medicine without a license. The case was appealed to the Supreme Court on the ground that the section of the Medical Act giving the board authority to cancel or revoke licenses was unconstitutional and that the methods of the board in the Sanders cancellation case were irregular. The Court upheld the conviction and the defendant was returned to the Detroit House of Correction, on Nov. 14, to serve the sentence of five months without the option of a fine.

A fortune-teller was recently arrested in Detroit, charged with practicing medicine without being registered and committed to the Recorder's Court for trial. She was charged with prescribing fetish-

ism and like remedies to a patient, claiming to have an ailment or a disease.

Citizens of Chalevoix County exceed the Barnum Speed Limit in its relation to births.

DeJordy, a chiropractor of Boyne City, tried recently upon the charge of practicing medicine without a license, was acquitted by the jury notwithstanding Judge Mayne directed a verdict of guilty as charged. The judge, in discharging the prisoner, stated that the jury had disregarded the evidence of the people (which had not been questioned by the defense) and the Court's directions. He warned the defendant that if he continued to violate the Medical Act, he would be vigorously prosecuted and if convicted, given the extreme sentence provided in law.

F. J. Little, a chiropractor residing at Alpena, Mich., was convicted recently in the Circuit Court, of practicing without having a certificate of registration on file with the county clerk. He, as is usual in this class of cases, threatens to carry an appeal to the Supreme Court. The only possible object for his appealing the case is from the fact that he thinks such a procedure gives him the right to practice in the interim of his conviction and the Supreme Court decision, which practice is, of course, illegal. The Michigan Supreme Court has already passed upon all phases of the Medical Act in its relation to chiropractors and other "isms."

Dr. D. Emmett Welsh, Grand Rapids, is planning to spend February and March in the West Indies.

The Joint Committee on Public Health Education will meet with the Council, at the January Session in Ann Arbor.

The Legislation Committee held a meeting in Lansing on December 8.

Dr. A. M. Hume of Owosso boasts of a new avocation—that of farmer. He took first prize at the Apple Show, on his farm exhibits.

We desire to correct a mistatement in our last issue. Dr. E. L. Eggelstone of Battle Creek states he attended a "prayer meeting" and not a "prize fight" at Grand Rapids. We are truly apologetic for the typographical error.

Dr. C. C. Slemons, Health Officer of Grand Rapids, is planning a goitre survey of the public school pupils of that city.

Dr. R. J. Hutchinson of Grand Rapids was elected president of the Kent County Medical Society at the annual meeting held in December.

County Society News

GENESEE COUNTY

The Genesee County Medical Society meets every other Wednesday for noon luncheon. Three meetings were held for November. On Nov. 1st Dr. W. Blodgett of Detroit addressed the society on "Backache." The work of cancer week was taken up and a speakers' committee appointed. The letter from Dr. Dodge concerning "The Separate School for Nurses" was read before the society and President Chapell appointed Dr. Manwaring chairman of a committee to draft resolutions concerning the stand taken by our society.

On Nov. 15, the local society went to St. Johns to attend the annual meeting of the 6th District. Papers were read by Drs. Abbott and Hugh Cabot of Ann Arbor.

Drs. Paul Woolley and N. M. Allen of Detroit addressed the society on Nov. 29. Dr. Woolley spoke upon "The Clinical Laboratory" and Dr. Allen talked on "Pyloric Stenosis in Infants." A very interesting discussion followed.

MAX BURNELL, Secretary.

MENOMINEE COUNTY

On October 15 the Menominee County Medical Society entertained some 100 upper peninsula medical men at the New Menominee County Sanitarium at Powers. The program was as follows:

"Some Clinical Aspects of Heart Disease," Dr. R. H. Towhy, Duluth, Minn.

"Diseases of the Bladder," Dr. Hugh Cabot, Ann Arbor, Mich.

"New Tendencies in the Treatment of Diabetes," Dr. Louis Newberg, Ann Arbor, Mich.

After the program a chicken supper was served followed by a round of after dinner speeches.

Dr. and Mrs. A. W. Erickson who came to Menominee on July 1 from Ironwood are rejoicing in the birth of their first son, Robert Waldemar.

Dr. R. A. Walker, who has practiced continuously in Menominee for the last twenty-six years, left on Nov. 3 for his new home in Lansing, where he will continue the practice of medicine. He has taken over the office and practice of Dr. A. H. Wilson in the Jennison building. Dr. Walker is a past president of the Menominee County and the Upper Peninsula Medical Societies. The best wishes of the profession go with him. His office in Menominee has been taken over by Dr. J. T. Kaye.

J. T. KAYE, Secretary.

INGHAM COUNTY

The twenty-first annual meeting of the Ingham County Medical Society was held Thursday evening, Nov. 23 at the Elks home.

The following was the order of business: General discussion, report of committees, petitions for membership, annual report of secretary-treasurer, election of officers.

It was moved by Dr. Haze that the president appoint a committee from the Society to co-operate with Health Center officials to discuss ways and means of transferring the City Clinic to the Sparrow Hospital. Carried.

It was moved and seconded that a committee be appointed by the president to design and submit a suitable emblem for automobiles, this emblem to be issued to the members of the society by the secretary and that Dr. Toles should be chairman of that committee. Carried.

The following physicians were elected to membership: Dr. Max Wershow, Lansing; Dr. Alexander Borland, East Lansing; Dr. Robert Walker, Dr. H. B. Weinburgh, Dr. S. H. Watley, Lansing.

The following were then elected officers for the ensueing year: President, Dr. Arthur E. Owen; Vice President, Dr. J. Earl McIntyre; Secretary-treasurer, Howard C. Rockwell.

Resolutions were then drawn up and passed, unanimously, that this society go on record as greatly and seriously opposed to the adoption of or the putting into practice of the suggestions and recommendations, relative to the training of nurses of the Director of the University Hospital as made to the Board of Regents. Copies of these resolutions were mailed to each member of the Board of Regents, the Dean of the Medical School and to the Secretary of the Michigan State Medical Society.

After the business meeting the doctors and their wives were ushered into the Elks banquet room and at 7 o'clock sat down to a very elaborately appointed turkey dinner. One hundred and twenty-five were

seated at the tables which were very prettily decorated with potted plants and baskets of cut flowers. The Lansing High School orchestra played as the guests were being seated. During the serving of the courses the Lansing quintet sung several numbers which were heartily encored.

Dr. Holm, our retiring president, acting as toastmaster, asked the newly elected officers to rise, and introduce themselves and wives. Dr. Holmes then delivered his address.

Dr. Holm then called upon Dr. Harry Bartholomew who chose as his subject "Vital Success." He classified in a very able and austere way the noble attainments which we should all endeavor to pursue if we wished to be successful. His thesis was ably illustrated by personal observations on his own life.

Dr. B. M. Davey and Dr. F. J. Drolett gave short impromptu remarks.

The principal speaker of the evening was then introduced, Prosecuting Attorney Elect Barnard Pierce, who chose as his subject, "The Regulation of the Practice of Medicine in the State of Michigan." Mr. Pierce was an able speaker and assured those present that he would do all in his power to prosecute those who persisted in the illegitimate practice of medicine.

H. C. ROCKWELL, Secretary.

GRATIOT-ISABELLA-CLARE COUNTY

For our October meeting we had Dr. R. L. Novy of Detroit, who gave a very interesting clinic on heart cases.

For our November meeting we had Dr. Udo J. Wile of the University Medical School, who conducted a clinic on cutaneous diseases.

For our December meeting we had Dr. Hugh Cabot, Dean of the University Medical School, who gave his lecture, "Germs and Their Relation to Human Life," to the public in the Alma High school. We were a little disappointed in the attendance, but those whom we talked to enjoyed the lecture very much.

At 5 o'clock we had our annual business meeting in the Wright house in Alma. The following resolution was adopted:

That the establishment of a separate department in the University Hospital for Nurses training is disapproved. Second we request that the conduct of the University Hospital and the Nurses Training School, shall be again in charge of the faculty of the Medical school, where it has always been until changed by the exigencies of the late war.

The following were elected officers for 1923: President, M. F. Brondstetter, Mt. Pleasant; Vice President, Charles F. DuBois, Alma; Secretary, E. M. Highfield, Riverdale.

At 7:30 in the Wright House we had our annual banquet for the doctors and their wives. Thirty-three partook of the good things after which we had a short musical program. The ladies then went to the movie, while the M. D.'s listened to a fine lecture by Dr. Hugh Cabot entitled "The Natural History of Cystitis With Particular Reference to So-called Catheter Cystitis." Dr. Cabot's scholarly and exact ways are too well known for me to need to dilate on them here.

With the complements of the season to you, we are

E. M. HIGHFIELD, Secretary.

Book Reviews

THE PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINES, Vol. 2, 1922. Containing Reports of the Council on Pharmacy and Chemistry and contributions from the A. M. A. Chemical Laboratory and from The Journal of the American Medical Association. Cloth. Price $2.00. Pp. 603 with illustrations. Chicago: American Medical Association, 1922.

The present book is the second volume of the "Propaganda for Reform in Proprietary Medicines." The first volume ran through nine editions. The ninth edition contained (1) the most important reports of the Council on Pharmacy and Chemistry, (2) the reports of the A. M. A. Chemical Laboratory, and (3) those articles from The Journal of the American Medical Association which deal with the problems of proprietaryship in medicine and the furtherance of rational drug thereby. All of this material covered a period prior to 1917.

The present (second) volume contains similar material covering the period from January, 1817, to April, 1922, inclusive. Like Volume 1, this volume is divided into four parts:

Reports of the Council on Pharmacy and Chemistry—This section present the principles and rules which govern the Council in the examination of medicaments, contains articles and reports bearing on the work of the Council as well as the most important reports of the Council from 1917 to April, 1922, inclusive.

Reports of the A. M. A. Chemical Laboratory—This, besides presenting the aims and objects of the Association's Chemical Laboratory, also outlines some of the Laboratory's work which is of special interest to physicians.

Contributions from The Journal—Proprietary Products—This contains articles which have appeared in The Journal A. M. A. on proprietary preparations and their methods of exploitation.

Contributions from The Journal—Miscellany—In this section are articles dealing with matters of interest to the medical profession but not coming strictly under the classification of proprietary medicinal preparations.

A comparison of the material that has appeared in Volume 1 of the Propaganda for Reform with that which appears in this Volume will reveal the changing conditions in the proprietary medicine field. Many of the reports in the first volume brought out the fact that medicinal preparations were at that time foisted on the profession with false claims of composition; reports of this character are less conspicuous in the present volume. Many of the reports in Volume 2 deal with unwarranted therapeutic claims, especially those advanced for animal organ preparations, serums, vaccines, preparations for intravenous medication, etc. The present volume will also be found of interest in its portrayal of the changed conditions in proprietary medicines brought about by the World War.

The index in this new volume is, in effect, a bibliography, including reference not only to articles in the book but also (a) to articles which appeared in Volume 1; (b) to articles on the same general subject in The Journal of the American Medical Association, and (c) to articles appearing in the annual reports of the Council on Pharmacy and Chemistry and of the A. M. A. Chemical Laboratory, but not printed in either volume of the Propaganda for reform in Proprietary Medicines.

This book is not only valuable for the information, but it is also interesting. It shows up the technique of the artist in the sale of proprietary medicines, tells of his skilful word-pictures that are sent to the physician as "literature." It makes clear the work of the Council of Pharmacy and Chemistry, the A. M. A. Chemical Laboratory and The Journal of the American Medical Association in their several capacities as servants to the medical profession and as champions of rational medicine. The book should be in every physician's library; and more than that, should be within reach for convenient reference.